

McLane Fire-August 9-12, 2005-Hanford Reach National Monument

BURNED AREA EMERGENCY STABILIZATION PLAN



AGENCY/UNIT: U.S. Fish and Wildlife Service, Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge

LOCATION: Franklin and Grant County, Washington

DATE: August 9-12, 2005

PREPARED BY: Hanford Reach National Monument ESR Team

Submitted By: _____ Date: _____
Greg M. Hughes, Project Leader

BURNED AREA EMERGENCY STABILIZATION PLAN

McLANE FIRE-Hanford Reach National Monument

REVIEW AND APPROVAL -- US Fish and Wildlife Service

I. EMERGENCY STABLIZATION PLAN CONCURRENCE

- ☐ **Concur**
- ☐ **Concur with Revision**
- ☐ **Disapproved**

Explanation for Revision or Disapproval:

Gregory M. Hughes, Project Leader, Hanford Reach National Monument

Date

- II. Regional Fire Management Coordinator: Concurrence that this plan fits the technical definition for use of Burned Area Emergency Stabilization funding and policy guidelines.**

Regional Fire Management Coordinator, Region 1, USFWS

III. EMERGENCY STABILIZATION PLAN APPROVAL

- ☐ **Concur**
- ☐ **Concur with Revision**
- ☐ **Disapproved**

Explanation for Revision or Disapproval:

William Hartwig, Chief-National Wildlife Refuge System

Date

EXECUTIVE SUMMARY

Introduction

This plan has been prepared in accordance with provisions contained within Chapter 620 DM 3- Burned Area Emergency Stabilization and Rehabilitation, Presidential Proclamation 7319 of June 9, 2000 and the Hanford Reach National Monument Fire Management Plan. This plan provides burned area emergency stabilization and rehabilitation (ESR) recommendations for all lands burned within the McLane Fire perimeter and downstream impact areas including public lands administered by the U.S. Fish and Wildlife Service. The primary objectives of the McLane Fire Burned Area Emergency Stabilization (ES) Plan are:

- To prescribe cost effective post-fire stabilization measures necessary to protect human life, property, and critical cultural and natural resources.
- To promptly stabilize and prevent further degradation to affected resources on lands within the fire perimeter and downstream impacted areas and mitigate damages caused by fire suppression operations in accordance with approved land management plans and policies, and all relevant federal, state, and local laws and regulations.

Emergency Stabilization

This plan addresses the emergency stabilization and fire suppression impacts/ fire related damages to lands administered by the Service on the Hanford Reach National Monument (HRNM). Based upon field assessments conducted by HRNM staff from August 9-12, 2005, an analysis was conducted to include: suppression impacts, watershed stability, archaeological and vegetation impacts, fire effects on known threatened and endangered (T&E) species and their habitats. Archeologists conducted initial inventories of suppression impacts for potential damage to cultural sites as well as initiating a cultural resource damage assessment. The vegetation specialist evaluated and assessed fire damages and suppression impacts to vegetative resources, including threatened and endangered (T&E) species, and identified values at risk associated with vegetative losses. The wildlife biologist conducted an assessment of T&E species, and other species of management concern to the HRNM.

Individual resource Burned Area Assessment Reports produced by these specialists are in Appendix I. The individual treatments specifications, including the effectiveness monitoring identified in the assessments, can be found in Part F. A summary of the costs is in Part E. Appendix II contains the National Environmental Policy Act (NEPA) compliance documentation summary. Appendix III contains photo documentation; Appendix IV contains supporting documentation; and Appendix V contains the ESR Plan maps respectively.

Fire Background

The McLane Fire, Number 13700-9141-B2U2 was reported on August 9, 2005 at approximately 1530 hours. The fire was started when an agricultural burn conducted adjacent to the Monument on McLane road escaped containment and rapidly spread onto the Monument. The fire demonstrated extreme fire intensity on over 80% of the fire area as it was pushed through the shrub-steppe community by gusting winds. The McLane fire burned approximately 6850 acres in Wyoming Big sagebrush/ Bitterbrush and Riparian habitat surrounding the WB-10 pond area. The fire exhibited long residence time within the riparian area trees and heavy brush. The wet ground and heavy brush made fighting the fire difficult. The majority of the fire area, 6068 acres (89%) is within the Wahluke Unit of the Hanford Reach National Monument (HRNM), with 782 acres (11%) off the Monument to the east. These off Monument acres are a combination of private, state, Bureau of Land Management and Bureau of Reclamation lands.

Firefighters from Franklin county, Grant county, Benton county, Hanford Fire and the USFWS (Hanford Reach NM, Mid-Columbia NWR, Columbia NWR) responded to the incident. A Single Engine Air Tanker (SEAT) based out of the Richland, Washington airport was used for retardant drops on the upland areas.

Use of the SEAT, bulldozers and disking, along with engines supported by water tenders, initially proved effective methods for line construction and fire containment.

A unified command initiated initial attack at McLane Road. Initial attack activities were conducted by fire crews and engines and supported by the SEAT and a Challenger pulling a disc put in a firebreak on the west and southern flank (See Suppression Impacts Map, Appendix III). Due to the high fuel load, extreme fire intensity, and erratic winds, additional resources were ordered that included a local Type 3 Incident Management Team. Ultimately four bulldozers, a Type 1 helitanker (skycrane) out of Redmond, OR, and hand crews were on the fire along with county and federal firefighters and the SEAT. The skycrane was used for water drops near wetlands where retardant could not be used and for water drops on the uplands. Additional line construction occurred on the north and east flanks of the fire. In all, approximately 100 personnel were assigned to this fire. A Type 2 team from Oregon was ordered and arrived but was not implemented as the fire had been contained. The Type 2 team provided support and remained on scene for less than 12 hours.

Ground disturbance within the shrub-steppe plant community was substantial given the fire location and necessary fire suppression actions (i.e., disking and bulldozing actions) that were employed to prevent the loss of additional acres. Drought (extremely dry) conditions along with gusting winds had the potential to result in extreme fire behavior, lofting fire brands, and high potential for fire spread. The immediate need was to contain the fire to prevent further spread.

Suppression forces accessed the edges of the fire and along boundary fences and thereby created wheel track trails, in addition to the disked/bulldozed lines. These have compacted soils, increased access potential to off-road vehicles, and negatively impacted native vegetation and micro-biotic crusts.

The McLane Fire was controlled at approximately 2400 hours on August 12, 2005.

The HRNM ES Team, tasked with evaluation of short and long-term emergency stabilization needs, developed this plan to address the following issues:

- Cultural and natural resource values impacted by the fire or fire suppression actions.
- ES requirements established by Federal law, policies, and relevant Department of the Interior resource management mandates.
- Rehabilitation requirements established by state laws, policies, and regulations.
- Implementation of treatments in a timely manner, prior to the first damaging winds and rains.

Fire Damages and Threats to Human Safety and Natural and Cultural Resources

The McLane Fire burned 6068 acres of public lands. Fire suppression impacts included: approximately 13.5 miles of disked/bulldozed fire line (51 acres based on 16 foot width), damage to 8 miles of Monument boundary fence, and the potential spread of noxious weeds including; Russian and diffuse knapweed, perennial pepperweed, salt cedar, phragmites, swainson pea, yellow starthistle, rush skeletonweed, and puncture vine.

The entire fire has been mapped by the BAER Team for burn severity. Within shrub-steppe upland habitat areas (4976 acres) approximately 20 percent of the fire area is classified as low burn severity with 80 percent mapped as moderate/high burn severity. This attests to the fires' rapid spread through light fuels, extremely low fuel moisture levels in 100 and 1000 hour fuels and long residency times within the shrubs. Most of the soils examined were not water repellent. Therefore, an overall water yield increase due to the fire is expected to be minor and not exacerbate flooding events. Within the Riparian zones (1092 acres) the burn severity was low due to standing water and available fuel moistures (see map of burn severity/vegetation mortality – Appendix V).

In areas that were a shrub-steppe vegetation community prior to the fire, almost all plant and litter cover that was present in the burn area has been consumed by the fire. The loss of this vegetative cover has

exposed fine sand and silty soils to ablation. Nearly all soils within the burn area have a fairly high risk of wind erosion (please see photo documentation and soils map), however, sandy soils within the burn area are especially susceptible, and blowing dust poses an imminent threat to human life along Mount Vista Road and adjacent residences. The fuels within the riparian area were not completely consumed due to the high moisture content and surface water present in the area.

The ESR Team conducted field surveys after the fire to identify impacts and compile the following recommendations for rehabilitation of affected lands:

Emergency Stabilization Treatments:

- Conduct cultural resource damage assessment of known/documented sites
- Control unburned non-native invasive plants
- Protect ecological integrity of native shrub-steppe plant communities through native grass seeding, native shrub seeding and native shrub plantings
- Monitor seeding effectiveness for site stabilization
- Control spread of noxious weeds and invasive plant species

Specifications were developed for all actions meeting the requirements for Emergency Stabilization (ES) funding.

Other resource impacts assessed as a result of the McLane Fire included a review of cultural sites impacted, and impacts to wildlife and vegetation resources.

An archeological inventory has been conducted on all suppression lines and known cultural sites within the fire area. Further cultural resource damage assessments will be required prior to implementation of ground disturbing stabilization actions.

Federal T&E plant species listed as occurring in or having habitat within Franklin or Grant County have not been previously mapped within the fire area.

Listed wildlife species existing within the fire area include 11 species of concern, including ferruginous hawk, loggerhead shrike, and sagebrush lizard. The fire area may also be considered potential habitat for Washington ground squirrels (federal and state candidate) and Columbia Basin pygmy rabbit (federal and state endangered). (See map section –Sensitive wildlife sightings and WA Ground Squirrel/pygmy rabbit habitat maps)

Vegetation resources provide valuable wildlife forage and habitat, watershed protection, and comprise a visually pleasing landscape. Generally speaking, bunchgrass communities experienced greater than 90% vegetative loss. On approximately 80% of the fire area, in upland shrub-steppe zones, complete consumption of vegetative resources was observed. Most shrub, grass and forb species and organic material on the soil surface was consumed indicating extreme fire intensity. The primary vegetative concerns are the recovery of the shrub-steppe plant community (Wyoming big sagebrush and antelope bitterbrush) and control of non-native species and noxious weed invasion. In the riparian zone, the vegetative loss was approximately 50%, on 1092 acres classed as riparian vegetation (18% of the total fire area). The burn was incomplete in the riparian area, leaving patches of unburned vegetation within the fire perimeter and the majority of the tree canopy (i.e., Russian olives) remained while understory areas were burned. Major and immediate concern for invasion of non-native species exists in this area where available water allows for plant growth year round.

This BAER Plan is the initial funding request for Emergency Fire Stabilization funds. The Emergency Fire Stabilization funding for this plan is for one year from the date of fire containment. At the conclusion of the funding period, a final Accomplishment Report will be due to the approval authority. The Accomplishment Report will document the funding received, (initial and supplemental funding), treatments installed, the effectiveness of the installed treatments and the results of monitoring activities.

Hanford Reach National Monument Management Requirements

The uniqueness and biological diversity of the Hanford Reach was formally recognized by Presidential Proclamation 7319 of June 9, 2000 establishing this area as the Hanford Reach National Monument. The monument is described as a “biological treasure, embracing important riparian, aquatic, and upland shrub-steppe habitats that are rare or in decline in other areas. Within its mosaic of habitats, the monument supports a wealth of increasingly uncommon native plant and animal species, the size and diversity of which is unmatched in the Columbia Basin.” Because of the high diversity of native plant and animal species, the large number of rare and sensitive plant species, the well developed microbial crusts and significant breeding populations of nearly all steppe and shrub-steppe dependent species, the FWS has been tasked to preserve and protect these objects of antiquity in perpetuity. Primary goals for the Monument through the current Draft Comprehensive Conservation Plan include:

- Protect and restore the native habitats and biodiversity of the Hanford shrub-steppe ecosystem.
- Monitor, protect, and recover native plants and animals that are federally or state listed and any other species that are in any other way considered sensitive.
- Monitor status and trends of migratory birds, particularly those that are considered shrub-steppe obligate species and manage local populations.
- Provide for compatible education, interpretation, and wildlife-dependent recreational opportunities.
- Promote public understanding of the shrub-steppe ecosystem through scientific research and allow other compatible research opportunities afforded by the unique and isolated environment of the National Monument.
- Manage for the protection, preservation, evaluation, and understanding of the cultural heritage and resources of the ALE Reserve while consulting with appropriate Native American groups and complying with historic preservation legislation.
- Provide for operation and maintenance activities without compromising ecological and cultural values.

Emergency Stabilization

Emergency Stabilization actions for the McLane fire include:

- Ecological stabilization through seeding of native species to prevent the establishment and re-establishment of non-native invasive plants.
- Re-establish fences to protect emergency stabilization efforts and facilitate recovery of the fire area
- Noxious weed and invasive species control to protect the ecological integrity of the site.

The following statements in the approved HRNM Fire Management Plan direct the development of the proposed burned area rehabilitation treatments funded through the Burned Area Stabilization and Rehabilitation funds:

- Prior to the completion of an ESR, rehabilitation may be initiated by the Incident Commander, FMO, or Project Leader. A set of standard treatments for slopes, channels, and roads are pre-approved and listed in the Fire Management Handbook on pg. 5.2-1. If emergency rehabilitation measures are needed or if rehabilitation is needed to reduce the effects of a wildland fire then the Monument can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund. ESR plans for each fire will be reviewed by the Fire Analysis Committee. A final plan will be submitted to Region for establishing an account. Rehabilitation should be initiated prior to complete demobilization or early the following season.
- Protect and restore the native habitats and biodiversity of the Hanford shrub-steppe ecosystem. (ALE -CCP)
- Monitor, protect, and recover native plants and animals that are federally or state listed and any other species that are in any other way considered sensitive. (ALE-CCP)

**BURNED AREA EMERGENCY STABILIZATION PLAN
McLANE FIRE-Hanford Reach National Monument**

PART A FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	McLane	Jurisdiction	Acres
Fire Number	13700-9141-B2U2	USFWS, Hanford Reach NM Private Bureau of Land Management Bureau of Reclamation	6068 782
Agency Unit	US Fish and Wildlife Service Hanford Reach National Monument		
Region	Region 1		
State	Washington		
County(s)	Franklin, Grant		
Ignition Date/Manner	August 9, 2005 Human-caused/Agricultural burning		
Zone	Pacific Northwest		
Date Contained	August 11, 2005		
Date Controlled	August 12, 2005		

PART B NATURE OF PLAN

Type of Plan (check one box below)

Initial Submission	X
Update and Revising Initial Submission	
Supplying Information For Accomplishment To Date On Work Underway	
Different Phase Of Project Plan	
Final Report (To Comply With The Closure Of The EFR Account	

EMERGENCY STABILIZATION OBJECTIVES

- Locate and stabilize severely burned conditions that pose a direct threat to human life, property, or critically important cultural and natural resources.
- Recommend post-fire emergency stabilization prescriptions that prevent irreversible loss of natural and cultural resources.
- Conduct immediate post-burn reconnaissance for fire suppression related impacts to threatened and endangered (T&E) species, and cultural sites.
- Develop monitoring specifications designed to document relative effectiveness of emergency stabilization treatments or whether additional emergency stabilization treatments are required.

**BURNED AREA EMERGENCY STABILIZATION PLAN
McLANE FIRE**

PART C - TEAM ORGANIZATION

BAER TEAM MEMBERS

POSITION	TEAM MEMBER / AGENCY
Team Leader	Heidi Newsome, USFWS
Operations	Robert Little, USFWS
Vegetation	Heidi Newsome, Jennifer Meisel, USFWS,
Soil and Watershed	Jennifer Meisel, Kevin Goldie, USFWS
Wildlife	Heidi Newsome, Jennifer Meisel, Kevin Goldie, USFWS
Cultural	Dan Mulligan, USFWS – Regional Office, Portland
Environmental Compliance	Heidi Newsome USFWS
GIS	Lindsey Hayes, Jennifer Meisel USFWS
IT / Documentation	Heidi Newsome, Jennifer Meisel USFWS

PRIMARY SUPPORT PERSONNEL

Hanford Reach NM Deputy Project Leader	Mike Ritter, USFWS
Fire Management Officer	Eric Hagen, USFWS
Outdoor Recreation Planner	Paula Call, USFWS

PART D - SUMMARY OF APPROVAL AUTHORITIES

US FISH AND WILDLIFE SERVICE

ACTIVITIES REQUIRING NATIONAL OFFICE APPROVAL (Emergency Stabilization Requests (Charged to ES)).	Cost
#1, Non-Native Invasive Species Control- Integrated Pest Management	\$345,166
#2, Ecological Stabilization, Native Seeding	\$1,333,868
#3, Ecological Stabilization, Native Plantings	\$60,220
#4, Protective Fencing	\$179,677
#5, Implementation Leader	\$79,080
#6, Effectiveness Monitoring	\$49,003
#7, Public Safety, Warning Signs	\$2,520
#8, Plan preparation	\$7,563
SUBTOTAL	\$2,057,097

PART E SUMMARY OF ACTIVITIES

The SUMMARY OF ACTIVITIES table identifies emergency stabilization costs charged or proposed for funding from fire suppression rehabilitation, emergency stabilization, or rehabilitation funding sources. The total cost of the treatments excluding the costs absorbed by the fire (fire crew, labor and associated overhead) is displayed as either Fire Suppression Rehabilitation (**SR**), Emergency Stabilization (**ES**), Rehabilitation (**R**), or Agency Operations/Other (**OP/O**).

PART E – US FISH AND WILDLIFE SERVICE

No.	TREATMENT SPECIFICATION	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
					SR	ES	R		
#1	Non-Native Invasive Species Control- Integrated Pest Management	Acres	\$56.88	6,068		ES		C	\$345,166
#2	Ecological Stabilization, Native Seeding	Acres	\$239	5576		ES		P	\$1,333,868
#3	Ecological Stabilization, Native Plantings	Acres	\$502	120		ES		P	\$60,220
#4	Protective Fencing	Miles	\$22,460	8.0		ES		C	\$179,677
#5	Implementation Leader	Job	\$79,080	1		ES		P,M,T	\$79,080
#6	Effectiveness Monitoring	Acres	\$8.08	6068		ES		P	\$49,003
#7	Public Safety, Hazard Warning Signs	Signs	\$28	90		ES		C	\$2,520
#8	Plan Preparation	Plan	\$7,563	1		ES		P	\$7,563
								TOTAL	\$2,057,097

BURNED AREA EMERGENCY STABILIZATION PLAN

McLane Fire

PART F - SPECIFICATION

SPECIFICATION TITLE:	Non-native invasive species control-Integrated Pest Management	JURISDICTIONS:	USFWS-HRNM
PART C: LINE ITEM:	#1- Non-native invasive species control-Integrated Pest Management	FISCAL YEAR:	2005, 2006
ESR REFERENCE #:	8.3.2.1 Non-native Invasive Plant Control	SPECIFICATION TYPE:	ES

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Control noxious weed infestations remaining within McLane Fire area prior to seed-set and maturation. Control new infestations in spring of 2006. Current weed species observed include Rush skeleton weed (<i>Chondrilla juncea</i>), Russian knapweed (<i>Acroptilon repens</i>), Perennial pepperweed (<i>Lepidium latifolium</i>), diffuse knapweed (<i>Centaurea diffusa</i>), yellow starthistle (<i>Centaurea solstitialis</i>), rush skeletonweed (<i>Chondrilla juncea</i>), puncturevine (<i>Tribulus terrestris</i>), salt cedar (<i>Tamarix ramosissima</i> , <i>T. parviflora</i>), swainsonpea (<i>Sphaerophysa salsula</i>), Canada thistle (<i>Cirsium arvense</i>), Russian Olive (<i>Eleagnus angustifolia</i>), Phragmites (<i>Phragmites australis</i>), kochia (<i>Bassia scoparia</i>), and Russian thistle (<i>Salsola kali</i>). Utilize integrated pest management techniques (herbicides, biological, mechanical and cultural control methods) as appropriate to prevent the spread and establishment of noxious weeds within the fire area. Control Cheatgrass (<i>Bromus tectorum</i>) that germinates in fall of 2005 and spring of 2006 to reduce competition with native species recovery and reseeding efforts.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Control all visible noxious weed populations along roads, trails and disturbed sites within the fire area. Control sites identified include dozerlines, disklines, known infestations of salt cedar, rush skeletonweed, diffuse knapweed, yellow star thistle, puncture vine, perennial pepperweed, Russian knapweed, Russian Olive, swainsonpea, kochia, and Russian thistle. Control non-native invasive species, such as cheatgrass, within the fire perimeter to decrease competition for native grass seeded species.
C. Provide and Number Detailed Design/Construction Specifications
1. Control known populations of noxious weeds as identified in USFWS and DOE monitoring surveys (approximately 800 acres) prior to seed set in accordance with guidelines contained within ALE and DOE management plans and approved Environmental Assessments.
2. Recommended herbicide for rush skeleton weed, diffuse knapweed, yellow starthistle, puncturevine, Canada thistle, kochia, and Russian thistle, within upland shrub-steppe areas, is Transline (Clopyralid) @ 1pt/gallon spot treatment and 2,4-D @ 2 pt./gallon in broadcast application. Recommended herbicide for cheatgrass control is Roundup PRO® (glyphosphate). Application at low concentrations (3.5 oz.-1 pint/acre) during late winter-early spring will minimize damage to native species. Surfactant will be required to an adjuvant to these weed treatments.
3. Recommended herbicide for salt cedar, Russian olive, Russian knapweed, perennial pepperweed, Phragmites, within riparian habitat areas is Habitat @ 6 pt/gal. Aerial treatment, followed by backpack/spot treatment for persistent weeds, and swainsonpea using Habitat/Arsenal with Garlon 4 in combination. Surfactant will be required as an adjuvant to these weed treatments. Mechanical removal of Salt Cedar and dead Russian Olive trees, use of hydraulic excavator.
4. Roadside and small infestations will be treated by backpack spraying or truck/ATV mounted sprayer. Non-native invasive species control within interior of fire area will be treated using fixed-wing or rotary aircraft services.
5. Winds in the area to be sprayed should be less than 10 MPH (constant).
6. A buffer of 150 feet will be adhered to around all private land areas. Herbicides approved for aquatic use will be used in riparian wetland areas according to labeled specifications.
7. Applicator will be state certified. All aircraft used should be OAS certified; will be equipped with GPS guidance systems and contractor will be licensed and bonded.
8. Locate, map, and document (using photography, topographic maps, and Global Positioning System--GPS--technology), new weed occurrences within burned area. Provide GPS shapefile to aerial contractors for use in GPS guided applications. Document percent control or kill of noxious weeds.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
Protect the ecological integrity and site productivity of shrub-steppe plant communities and riparian areas within the Monument and DOE lands in accordance with established management plan guidelines.
E. Describe Treatment Effectiveness Monitoring
Spot checking of noxious weed sites to ensure control methods are meeting management objectives. A staff person from the HRNM will visit sites controlled every week after initial treatment; this is especially important for weed populations that are sprayed to ensure effectiveness of herbicide application. If both spring and summer/fall applications are used then visits will occur during both these times.

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Maintenance Laborers (2) x \$24/hour x 120 hours per treatment x 3 treatment periods x 1 year (Backpack spraying work)	\$17,280
Wildlife Biologist (GS-11) x \$ 21.68/hour x 80 x 2 treatment monitoring periods x 1 year – treatment monitoring	\$3,469
TOTAL PERSONNEL SERVICE COST	\$20,749

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
Misc. Spray nozzles, hoses, backpack sprayer, equipment repair	\$900
Hydraulic excavator for tree removal, @ \$145/hr for 80 hours, with 1 time cost for Mob and De-Mob \$460.	\$12,060
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	\$12,960

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Roundup Pro- 622 gallons (1pt./ac x 4976 ac.) @ \$31.10/gallon	\$19,344
2,4-D Amine- 1244 gallons (2 pt/ac x 4976 ac) @ \$9.50/gallon	\$11,818
Transline - 5 gallons (0.5% solution over 4976 acres spot treatments) @ \$295/gallon	\$1,475
Habitat – 600 gallons (6 pt/acre X 800 acres Riparian habitat) @ \$270	\$162,000
Garlon 4 – 250 gallons (4 pt/ac X 800 acres Riparian habitat) @ \$80	\$20,000
MSO or MVO Surfactant – 175 gallons @ \$ 16.00	\$2,800
Biological Control Agents- Russian Thistle, yellow starthistle, diffuse knapweed, puncturevine	\$3,000
TOTAL MATERIAL AND SUPPLY COST	\$220,437

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
Aerial Application of Herbicide-6068 ac. X \$15/ac.	\$91,020
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2006	Acres	\$56.88		\$345,166	ES	C
TOTAL	Acres	\$56.88		\$345,166	ES	P,C
FUNDING SOURCES F= Fire Suppression ESR = Emergency Stabilization & Rehab. OP/O = Agency Operating Fund EWP = Emergency Watershed Program		SPECIFICATION TYPE ES = Emergency Stabilization R = Rehabilitation FS = Fire Suppression		METHOD OF COMPLETION P = Agency Personnel Services C = Contract EFC = Emergency Fire Contract FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	M,C
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT**List Relevant Documentation and Cross-References within ESR Plan**

Refer to Vegetation Assessment- Appendix I; and Noxious Weed Maps (Riparian and Upland)-Appendix V. Refer to Invasive Plant Species Inventory and Management Plan for the Hanford Reach National Monument (2003).

IV. TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
USFWS	6068	\$345,166
TOTAL COST	6068	\$345,166

BURNED AREA EMERGENCY STABILIZATION PLAN

McLANE FIRE

PART F - SPECIFICATION

SPECIFICATION TITLE:	Ecological Stabilization- Native Seeding	JURISDICTIONS:	USFWS-HRNM
PART C: LINE ITEM:	#2- Ecological Stabilization- Native Seeding	FISCAL YEAR:	2006
ESR REFERENCE #:	8.3.2.3 Revegetation	SPECIFICATION TYPE:	ES

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment	
Apply native seed mix through aerial broadcast, and drill seeding applications in burned area to stabilize ecological integrity of native shrub steppe community, prevent invasion by noxious weeds and non-native species, and to limit erosion and stabilize soils.	
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment	
The McLane Fire area on Monument lands (6068 acres) is located on the Wahluke unit of the Hanford Reach National Monument (see Appendix 5 – Maps). Reseeding should take place across the portions of the fire area (4976 acres) that were critical shrub-steppe habitat areas to stabilize soils, limit weed invasion, and promote ecological integrity. Riparian areas will be seeded using Great Basin Wild Rye seed around the edges of the pond area, 600 acres.	
C. Provide and Number Detailed Design/Construction Specifications	
1. <u>Purchase native seed mix:</u> in appropriate amounts to stabilize soils and ecological function according to the following specifications for native seed mix.	
Seed Mix: (4976 acres – shrub-steppe management areas):	
Indian Ricegrass (<i>Oryzopsis hymenoides</i>) (Nez Par)	3 lbs./ac. PLS
Sandberg's bluegrass (<i>Poa sandbergii</i>) (Hanford)	4 lbs./ac. PLS
Needle and Thread (<i>Stipa comata</i>)	1 lb./ac. PLS
Thickspike Wheatgrass (Swindemar) (<i>Elymus lanceolatus</i>)	2 lbs./ac PLS
Sand dropseed (<i>Sporobolus cryptandrus</i>)	0.5 lb. /ac PLS
Bluebunch Wheatgrass (<i>Agropyron spicatum</i>)	2 lb. /ac. PLS
Wyoming Big sagebrush (<i>Artemisia tridentata</i> var. <i>wyomingensis</i>)	0.2 lbs/ac PLS
Yarrow, (<i>Achillea millefolium</i>)	0.5 lbs./ac PLS
Antelope bitterbrush (<i>Purshia tridentata</i>)	0.1 lbs/ac PLS.
Riparian acres – 600 acres	
Great Basin Wild Ryegrass seed (<i>Elymus cinereus</i>)	4 lbs/acre PLS
2. <u>Seed Mixture Selection and Certification:</u> The seed mix should be tested for purity and germination rates. Before accepting delivery of seed shipment the contractor must provide written evidence (seed label and letter) to the Monument managers (Deputy Project Leader or Natural Resources Specialist) that the seed conforms to the purity and germination requirements in the specification. Seed must also be source identified as to its origin. Columbia Basin derived and grown seed is required, where practical, for all native grass, forb and sagebrush species.	
3. <u>Delivery:</u> Deliver certified weed-free seed sold on pure live seed basis. Deliver to Hanford Reach National Monument. <u>Storage:</u> Seed should be applied as soon as possible after delivery. If immediate application is not possible the seed should be stored under dry, cool conditions and protected from rodents and other wildlife. Seed also needs to be protected from dew and rain.	
4. <u>Timing of Seeding Application:</u> Seeding should occur in December, 2005, or no later than late January, 2006. <u>Application Rate:</u> Seed will be applied at the above rates, on a PLS/acre basis.	
5. <u>Application Method:</u> Seed will be applied by aerial contract services for broadcast seed operations. Broadcast seeding will be conducted by fixed-wing aircraft. Aircraft should be OAS certified; will contain GPS guided navigational systems for accurate seed placement to coordinates provided by the USFWS; contractor must be bonded.	
Drill Seeding- Approximately 1500 acres of the McLane fire will be seeded with a rangeland drill on sandy loam and loamy sand soils on the north eastern and southwestern portions of the fire. Drill seeding operations will be conducted at ½ the aerial application rate.	
D. Describe Purpose of Treatment Specification – What Resource will be Protected	
To promote ecological recovery of native shrub/steppe ecosystem and riparian zones, to prevent invasion by non-native species and noxious weeds, and to stabilize soils.	
E. Describe Treatment Effectiveness Monitoring	
Monitor to determine effectiveness and if a second seeding is needed. See specification Effectiveness Monitoring.	

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
3-Maintenance Personnel x \$24/hour x 40hours x 3 weeks (Drill seeding operations)	\$8,640
TOTAL PERSONNEL SERVICE COST	\$8,640

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
Drill Seeder Rental @ \$11/acre x 1500 acres	\$16,500
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	\$16,500

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Native Seed Mix @ \$235ac x 4976 acres	\$1,169,360
Great basin wild rye @ \$ 60 ac x 600 acres – Riparian areas	\$36,000
Cultipack rings, bearings, grease, oil, fuel (drill seeding operations)	\$3,000
TOTAL MATERIAL AND SUPPLY COST	\$1,208,360

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
Aerial Broadcast Seeding –Fixed Wing Aircraft \$18/ac x 5576 acres	\$100,368
TOTAL CONTRACT COST	\$100,368

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2006	Acres	\$239	5576	\$1,333,868	ES	P,C
TOTAL	Acres	\$239	5576	\$1,333,868	ES	P,C
FUNDING SOURCES F= Fire Suppression ESR = Emergency Stabilization & Rehab. OP/O = Agency Operating Fund EWP = Emergency Watershed Program		SPECIFICATION TYPE ES = Emergency Stabilization R = Rehabilitation FS = Fire Suppression		METHOD OF COMPLETION P = Agency Personnel Services C = Contract EFC = Emergency Fire Contract FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	C
2. Documented cost figures from similar project work obtained from local agency sources.	P,M
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	

5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)				
P = Personnel Services	M = Materials/Supplies	T = Travel	C = Contract	F = Suppression

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan

Please refer to Vegetation and Wildlife Assessments- Appendix I; Treatments Map- Appendix V.

IV. TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
USFWS		\$1,333,868
TOTAL COST		\$1,333,868

**BURNED AREA EMERGENCY STABILIZATION PLAN
McLANE FIRE**

PART F - SPECIFICATION

SPECIFICATION TITLE:	Non-native Invasive Species Control	JURISDICTIONS:	USFWS-HRNM
PART C: LINE ITEM:	#3 Non-native invasive species control – native plantings	FISCAL YEAR:	2005, 2006
ESR REFERENCE #:	8.3.2.3 Revegetation	SPECIFICATION TYPE:	ES

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
The treatment will consist of planting native shrub/tree seedlings including Wyoming big sagebrush (<i>Artemisia tridentata</i>), Spiny hopsage (<i>Grayia spinosa</i>), Antelope bitterbrush (<i>Purshia tridentata</i>), winterfat (<i>Eurotia lanata</i>), and/or purple sage (<i>Salvia dorrii</i>), Willow (<i>Salix</i> sp), Black Cottonwood (<i>Populus balsamifera</i> ssp. <i>tricarpha</i>), Clematis (<i>Clematis ligusticifolia</i>), Red-twig dogwood (<i>Cornus stolonifera</i>), Golden currant (<i>Ribes aureum</i>), and Wood's rose (<i>Rosa woodsii</i>) as available, to rehabilitate impacted shrub-steppe and riparian plant communities that serve as critical habitat for listed and sensitive species.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Seedlings will be planted in historic native shrub plant community sites. Planting sites will be chosen based upon habitat recovery needs, soil productivity, moisture regimes, lack of invasive species, and other native plant species post-fire recovery. Seedling shrubs will be installed in areas near to the limited existing shrub cover that survived the fire. This will expand the effective shrub cover within the fire area, and will allow areas being seeded to native grasses to receive herbicide treatment without impacting planted shrubs. Shrubs/trees will be installed by contracted professional re-forestation planting crews. All sites will be cleared for planting by cultural resources staff prior to installing seedlings.
C. Provide and Number Detailed Design/Construction Specifications
1. Select planting locations and GPS boundaries of planting locations.
2. Provide maps to cultural resources personnel for review and clearance under section 106 NHPA.
3. Install seedling plants using contract re-forestation planters, December 2005/January 2006. Supervise planting and provide maintenance and logistics support.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
Protect and stabilize the ecological integrity and site productivity of native shrub-steppe plant communities and riparian areas, by preventing the invasion of non-native invasive species, and by establishing a trajectory for site recovery, within the Wahluke unit, Hanford Reach National Monument in accordance with established refuge purposes and establishment guidelines.
E. Describe Treatment Effectiveness Monitoring
During the summer of 2006, conduct survival survey to determine success of outplantings. Determination of survival rate should be documented with findings incorporated into greenhouse growing operations, management guidelines for native restoration, Agency protocols, and annual budget submissions.

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Wildlife Biologist or Natural Resource Specialist GS -11 (21.68/hr) X 200 Hours	\$4,336
Archeologist GS-11 (21.68/hr) X 60 Hours	\$1,734
TOTAL PERSONNEL SERVICE COST	\$6,070

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Native shrub seedlings – 4” tubing container stock @ .72 X 40,000	\$ 28,800
Native riparian plants – whips, and bare root seedlings for 20 acres to prevent weed re-invasion and stabilize burned areas. Salix (willow) sp. 1000 @ 0.85 ea = \$850 Wood’s rose 1000 @ 1.00 ea = \$1000 Golden currant 1000 @ .95 ea = \$950 Black cottonwood 1000 @ .55 ea = \$ 550 Red osier dogwood 1000 @ .70 = \$700 Clematis 1000 @ .80 = \$800	\$ 4,850
TOTAL MATERIAL AND SUPPLY COST	\$33,650

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
Re-forestation planting crew @ .37 per plant upland X 40,000 plants	\$ 14,800
Re-forestation planting crew @ .95 per plant riparian areas X 6,000 plants	\$5,700
TOTAL CONTRACT COST	\$20,500

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2006	acre	\$502	120	\$60,220	ES	P,C
2007						
TOTAL	acre	\$502	120	\$60,220	ES	P,C
FUNDING SOURCES F= Fire Suppression ESR = Emergency Stabilization & Rehab. OP/O = Agency Operating Fund EWP = Emergency Watershed Program		SPECIFICATION TYPE ES = Emergency Stabilization R = Rehabilitation FS = Fire Suppression		METHOD OF COMPLETION P = Agency Personnel Services C = Contract EFC = Emergency Fire Contract FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	M
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan
See Vegetation Assessment, Wildlife Assessment, Appendix I, Treatment Map, Appendix V

IV. TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
USFWS	120 acres	\$60,220
TOTAL COST		\$60,220

**BURNED AREA EMERGENCY STABILIZATION PLAN
McLANE FIRE**

PART F - SPECIFICATION

SPECIFICATION TITLE:	Protective Fencing	JURISDICTIONS:	USFWS
PART E: LINE ITEM:	#4, Exclusion Fences	FISCAL YEAR:	2006
ESR REFERENCE #:	8.3.4 Fences	SPECIFICATION TYPE:	ES

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Repair existing fence and construct additional fence to protect stabilization treatments and protect lands from unauthorized entry by vehicles, and/or the public that would threaten public safety and the ecological integrity of the burn area, and also to prevent trespass of livestock (cattle, horses and sheep) from private lands onto the Monument. Existing fence damaged by the fire will be repaired, and temporary fence will be constructed in strategic locations to protect resources. Remove burned-over wood post fence that is now down and poses a safety risk to Monument visitors and emergency stabilization workers. Replace access control gates along road access points.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Existing fence along the Eastern boundary of the National Monument, boundary with private land areas, along the South Columbia Basin Irrigation right-of-way, and within the fire area around parking area and public access zones.
C. Provide and Number Detailed Design/Construction Specifications
1. USFWS will designate specific fence locations, quantities, and order materials.
2. Contractor will install fence in accordance with standard USFWS fence specifications. Contractor will install fence in locations that have been cleared for Section 106 compliance.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
The purpose of this treatment is prevent unauthorized vehicles and livestock, from entering the burned area and causing damage to emergency stabilization treatments and recovering vegetation and soils. The treatment will also replace Refuge closure signs that were destroyed by the fire.
E. Describe Treatment Effectiveness Monitoring
See Vegetation Recovery Monitoring Specification

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Contract Oversight and Administration WG-10 Maintenance Foreman @ \$200/day x 15 days x 1 year	\$3,000
TOTAL PERSONNEL SERVICE COST	\$3,000
EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	
MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Fence Materials (4 –strand barbed wire) @\$7,695 / mile x 8.0 miles (Includes posts, wire, stretch posts, gates)	\$61,560
TOTAL MATERIAL AND SUPPLY COST	\$61,560
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
GSA Vehicle Rental @ \$350/month x 1.5 month	\$525
TOTAL TRAVEL COST	\$525
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM

Construction 8.0 miles @ \$11,324/mile (additional labor for 4-strand construction)	\$90,592
Remove 8.0 miles @ \$3,000/mile	\$24,000
TOTAL CONTRACT COST	\$179,677

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2006	mile	\$22,460	8.0	\$	ES	C,P
TOTAL	mile	\$22,460	8.0	\$	ES	C,P
FUNDING SOURCES		SPECIFICATION TYPE		METHOD OF COMPLETION		
F = Fire Suppression		ES = Emergency Stabilization		P = Agency Personnel Services		
ES/R = Emergency Stabilization/ Rehab.		R = Rehabilitation		C = Contract		
OP/O = Agency Operating Fund		FS = Fire Suppression		EFC = Emergency Fire Contract		
EWP = Emergency Watershed Program				FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below				
1. Estimate obtained from 2-3 independent contractual sources.				M
2. Documented cost figures from similar project work obtained from local agency sources.				C
3. Estimate supported by cost guides from independent sources or other federal agencies.				
4. Estimates based upon government wage rates and material cost.				P
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)				
P = Personnel Services	M = Materials/Supplies	T = Travel	C = Contract	F = Suppression

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within BAER Plan
Construction costs derived from current cost estimates for materials. Contractual labor costs based upon actual costs for associated work (24 Command Fire Final Accomplishment Report- 2004). Refer to Operations and Vegetation Assessments- Treatment Map- Appendix V.

IV. TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
USFWS	8.0 Miles	\$ 179,677
TOTAL COST	8.0 Miles	\$ 179,677

BURNED AREA EMERGENCY STABILIZATION PLAN McLANE FIRE

PART F - SPECIFICATION

SPECIFICATION TITLE:	IMPLEMENTATION LEADER	JURISDICTIONS:	USFWS
PART C: LINE ITEM:	#5, Implementation Leader	FISCAL YEAR:	2005, 2006
ESR REFERENCE #:	8.5 Project Management	SPECIFICATION TYPE:	ES

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Provide funding to support a part-time implementation leader to ensure prompt implementation of ES treatments. Salary and indirect costs are included for an individual to provide management direction of emergency stabilization and future rehabilitation treatment specifications and monitoring.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
The treatment specifications prescribed within the McLane Emergency Stabilization Plan will be implemented on FWS administered lands within the Hanford Reach National Monument. The Implementation Leader will coordinate all ES treatments with staff, contractors, private landowners, and others to ensure stabilization actions are achieved in a timely manner.
C. Provide and Number Detailed Design/Construction Specifications
1. The Implementation Leader will coordinate all aspects of emergency stabilization and future rehabilitation actions approved in the McLane Fire Burned Area Emergency Response Plan including the contracting of treatment specifications and activities, administering contracts, document treatments installed, maintaining financial tracking of costs, reporting rehabilitation progress, submitting supplemental requests for funding, ensuring the completion of all approved treatments, and coordinating with private landowners, universities, research groups and other affected agencies.
2. The Implementation Leader will contract and coordinate on-the-ground implementation of treatments including site orientation of contractors, developing daily/weekly work plans and supervising implementation activities.
3. The Implementation Leader will monitor the work to ensure compliance with all relevant Federal laws and regulations. Such laws and regulations include but are not limited to NEPA, NHPA, and all OSHA regulations and safety standards.
4. The Implementation Leader will provide semi-annual accomplishment reports due October 1 and April 1 detailing percent accomplishment for each project specification, dates of completion, funds expended, quality control inspection reports, and treatment effectiveness monitoring reports.
5. At the completion of the one year funding cycle for ES treatments, and the three year funding cycle for Rehabilitation treatments, the Implementation Leader will prepare a final accomplishment report. The final report will summarize all data requested in the semi-annual reports and provide a comprehensive and objective compendium of lessons learned of the treatment effectiveness of the prescribed treatments based on the prescribed monitoring plans found within the BAER ES and R plans. The report will be prepared in a hard copy and electronic format that will be distributed within the United States Government and will be made available to the public on Government administered websites. None of the reports will be considered proprietary to any contracted Implementation Leader, individual, company or their associated firms.
6. All approved Emergency Stabilization treatments must be completed within one year of the date of control of the fire. All approved rehabilitation treatments must be completed within three years of the control date of the fire.
7. Funding for implementation treatment specifications will be provided on a cost reimbursement basis except for mutually agreed upon start up costs as pre-approved by a warranted contracting officer and for a case by case basis of supplies and materials as pre-approved by a warranted contracting officer.
8. The implementation leader will comply with all federal labor laws. Overtime must be approved in advance. Overtime will not exceed the hours in a fourteen day pay period. Payroll records must be submitted quarterly for documentation purposes.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
The intent of this specification is to provide fiscal support for proper administration of the short and long-term emergency stabilization and rehabilitation treatments prescribed within the McLane Fire Emergency Stabilization Plan.
E. Describe Treatment Effectiveness Monitoring
The Implementation Leader will conduct review of projects, financial accountability, and oversight and provide written and

Implementation Leader

electronic monitoring reports as prescribe within DOI policy and the BAER plan.

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
10 months @ \$6,057/month	\$60,570
Administrative Support: \$GS-05 @ 2,835/month x 6 months	\$17,010
TOTAL PERSONNEL SERVICE COST	\$77,580

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Office Materials and supplies @ \$1,500/year x 1 year	\$1,500
TOTAL MATERIAL AND SUPPLY COST	\$1,500

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2006	Leader	\$79,080	1	\$	ES	P
2007						
TOTAL	Leader	\$79,080	1	\$	ES	P
FUNDING SOURCES F= Fire Suppression ESR = Emergency Stabilization & Rehab. OP/O = Agency Operating Fund EWP = Emergency Watershed Program		SPECIFICATION TYPE ES = Emergency Stabilization R = Rehabilitation FS = Fire Suppression		METHOD OF COMPLETION P = Agency Personnel Services C = Contract EFC = Emergency Fire Contract FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P,M,C
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services	M = Materials/Supplies
T = Travel	C = Contract
F = Suppression	

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan

IV TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
FWS	1	\$79,080
TOTAL COST		\$79,080

**BURNED AREA EMERGENCY STABILIZATION PLAN
McLANE FIRE**

PART F - SPECIFICATION

SPECIFICATION TITLE:	EFFECTIVENESS MONITORING	JURISDICTIONS:	USFWS-HRNM
PART C: LINE ITEM:	#6 – Effectiveness monitoring	FISCAL YEAR:	2006, 2007
ESR REFERENCE #:	8.3.6 - Monitoring	SPECIFICATION TYPE:	ES

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Revisit existing vegetation plots and install monitoring plots for treatments to determine the effectiveness of non-native invasive species control, native seeding, and native plantings.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Existing vegetation plots from pre-fire exist and those same sites would be re-visited to assess the degree of invasion of non-native species. These plots would be also be used to monitor effectiveness of stabilization treatments.
C. Provide and Number Detailed Design/Construction Specifications
1. Revisit existing vegetation plots and collect data to assess the degree of invasion of non-native species. Data would be collected in the same manner as previous in order to conduct analysis on pre- and post- fire abundance of non-native species. If cheat grass cover exceeds 20 % re-treat areas with herbicide mid-winter when cheat grass is green and other grasses are dormant to reduce cheat grass abundance. (based on Fire Risk Study- WSU- Joint Fire Science Program)
2. Establish seed trap sampling to deploy during seeding operations to determine if seed mix is applied at specified rate. The specified rate is 13.9 lbs/acre, if the values collected indicate that areas are < 50% of desired rate, then contractor will be required to re-apply seed(based on values obtained in report of 24 Command Fire, 2000 Rehabilitation treatments available from HRNM).
3. Establish random plot sampling to assess seedling emergence and survival of seeded species. Desired seeded plant composition would be 2 large bunch grass plant seedlings established per square meter, and 4 small bunchgrass plant seedlings per square meter. If overall sampling suggests < 1 large bunchgrass and < 2 small bunchgrass per square meter, then re-seed areas exhibiting poor emergence and survival (based on values obtained in report of 24 Command Fire, 2000 Rehabilitation treatments available from HRNM).
4. Establish transects to assess shrub planting survival. If seedling survival within plots is < 25 %, then re-plant native shrub seedlings in areas exhibiting < 25 % survival (based on values obtained in report of 24 Command Fire, 2000 Rehabilitation treatments available from HRNM).
D. Describe Purpose of Treatment Specification – What Resource will be Protected
Adaptive management based assessment of treatments. If treatments do not meet intended goals for native vegetation stabilization and prevention of invasion by non-native species into fire area, then treatments could be modified and adapted to meet goals.
E. Describe Treatment Effectiveness Monitoring
This specification is designed to secure a third party to monitor treatments in an unbiased fashion to provide the Agency with specific data in order to adapt management over time to meet goals of the BAER-ESR plan.

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Wildlife Biologist or Natural Resource Specialist GS-11 (21.68/Hr) X 240 hours (to establish contracts and organize and provide existing data)	\$5,203
TOTAL PERSONNEL SERVICE COST	

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL MATERIAL AND SUPPLY COST	

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
Ecologist @ \$ 30/hr X 680 Hours X 2 Years	\$40,800
Contractor charges for supplies and equipment (cell phone, office supplies, monitoring plot field supplies) \$1500.00/year X 2 years	\$3,000
TOTAL CONTRACT COST	COST /ITEM

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2006	acres	\$8.08	6068		ES	C
TOTAL	acres	\$8.08	6068		ES	P,C
FUNDING SOURCES F = Fire Suppression ESR = Emergency Stabilization & Rehab. OP/O = Agency Operating Fund EWP = Emergency Watershed Program		SPECIFICATION TYPE ES = Emergency Stabilization R = Rehabilitation FS = Fire Suppression		METHOD OF COMPLETION P = Agency Personnel Services C = Contract EFC = Emergency Fire Contract FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	C
2. Documented cost figures from similar project work obtained from local agency sources.	P,C
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	C
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan
Refer to vegetation assessment, Specifications #1 and #2, Final Report of the 24 Command Fire BAER Rehabilitation Plan, Implementation report -

IV. TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
USFWS-HRNM	6068	\$49,003
TOTAL COST	6068	\$49,003

**BURNED AREA EMERGENCY STABILIZATION PLAN
McLANE FIRE**

PART F - SPECIFICATION

SPECIFICATION TITLE:	REPLACE AND INSTALL PUBLIC SAFETY SIGNS	JURISDICTIONS:	USFWS-HRNM
PART E: LINE ITEM:	#7, Public Safety, Hazard Warning Signs	FISCAL YEAR:	2006
ESR REFERENCE #:	8.3.5 Health and Safety	SPECIFICATION TYPE:	ES

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Install additional signs along the fire area warning of increased hazards from blowing dust. Install area closed signs to prevent public use in burned area.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
See McLane Fire Area Map and Operations Assessment. The area of the Monument where the McLane fire burned is an open public access area.
C. Provide and Number Detailed Design/Construction Specifications
1. Purchase signs.
2. Install signs through contract labor.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
Signage will warn public users of hazards and will also protect fragile fire area from being impacted by public use (horseback riding, vehicles, etc.).
E. Describe Treatment Effectiveness Monitoring
Inspect contract installation of signs prior to acceptance and payment.

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Maintenance Laborer @ \$24/hour x 40 hours x 1 year	\$960
TOTAL PERSONNEL SERVICE COST	\$960
EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	
MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Replacement Refuge Closure Signs \$6 /sign x 70 signs	\$ 420
New Warning Signs/Area Closed signs 20 @ \$105/sign	\$2,100
TOTAL MATERIAL AND SUPPLY COST	\$2,520
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2006	SIGN	\$28	90	\$2,520	ES	C
TOTAL	SIGN	\$28	90	\$2,520	ES	C
FUNDING SOURCES F= Fire Suppression ES/R = Emergency Stabilization/ Rehab. OP/O = Agency Operating Fund EWP = Emergency Watershed Program		SPECIFICATION TYPE ES = Emergency Stabilization R = Rehabilitation FS = Fire Suppression		METHOD OF COMPLETION P = Agency Personnel Services C = Contract EFC = Emergency Fire Contract FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	C
3. Estimate supported by cost guides from independent sources or other federal agencies.	P,M
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within BAER Plan
See Public Safety and Soil and Watershed Assessments in Appendix I and Treatments Map in Appendix III for additional information.

IV. TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
USFWS-McLane Fire	Signs	\$2,520
TOTAL COST	Signs	\$2,520

**BURNED AREA EMERGENCY STABILIZATION PLAN
McLANE FIRE**

PART F - SPECIFICATION

SPECIFICATION TITLE:	Plan Preparation	JURISDICTIONS:	USFWS-HFR
PART E: LINE ITEM:	#8- Plan Preparation	FISCAL YEAR:	2005
ESR REFERENCE #:	5.4.2 ESR PLAN	SPECIFICATION TYPE:	ES

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Prepare the Emergency Stabilization (ES) plan for the McLane Fire on the Hanford Reach National Monument.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Plan has been prepared to address all land ownerships within the McLane Fire including USFWS managed and private lands. Plan costs includes administrative costs, salaries of planning team, and supplies.
C. Provide and Number Detailed Design/Construction Specifications
<ol style="list-style-type: none"> 1. Conduct a detailed assessment of burn severity, its impacts to lands and the threats to life and property; protect critical cultural and natural resources. 2. Write specifications based on assessment recommendations. 3. Submit plan for approval and secure funding from appropriate sources. 4. Per policy, complete annual reports with monitoring narratives and cost details.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
To prepare a comprehensive ESR plan to manage or mitigate the fire impacts in order to protect life, property and critical cultural and natural resources.
E. Describe Treatment Effectiveness Monitoring
Per policy, an annual and final accomplishment report will be prepared with detailed costs and monitoring narratives and will be completed within 7 days of fire containment (DM 620, Chapter 3).

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Administration	\$818
Vegetation	\$1,430
Archaeology	\$1,790
Wildlife	\$1,050
Environmental Compliance	\$175
Documentation	\$1,050
Geographic Information Services	\$1,250
*All costs above reflect salaries, per diem, travel, supplies, and administrative costs	
TOTAL PERSONNEL SERVICE COST	\$7,563.00
EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	
MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL MATERIAL AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM

TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
TOTAL CONTRACT COST	COST /ITEM

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2005	Plan	\$7,423	1	\$7,563	ES	P
2006						
2007						
TOTAL	Plan	\$7,423	1	\$7,563	ES	P
FUNDING SOURCES		SPECIFICATION TYPE		METHOD OF COMPLETION		
F = Fire Suppression		ES = Emergency Stabilization		P = Agency Personnel Services		
ES/R = Emergency Stabilization/ Rehab.		R = Rehabilitation		C = Contract		
OP/O = Agency Operating Fund		FS = Fire Suppression		EFC = Emergency Fire Contract		
EWP = Emergency Watershed Program				FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P,M,T
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services	M = Materials/Supplies
T = Travel	C = Contract
F = Suppression	

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within BAER Plan

IV. TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
USFWS	1	\$7,563
TOTAL COST		\$7,563

**BURNED AREA EMERGENCY STABILIZATION PLAN
McLANE FIRE- HANFORD REACH NATIONAL MONUMENT**

APPENDIX I RESOURCE ASSESSMENTS

- **CULTURAL RESOURCE ASSESSMENT**
- **WILDLIFE RESOURCE ASSESSMENT**
- **VEGETATION RESOURCE ASSESSMENT**
- **OPERATIONS RESOURCE ASSESSMENT**



**BURNED AREA EMERGENCY STABILIZATION PLAN
MCLANE FIRE
CULTURAL RESOURCE ASSESSMENT**

I. OBJECTIVES

Assess damages to known historic and prehistoric cultural resources as the result of fire behavior.

Assess potential risks to known/documented cultural resources as the result of the fire (e.g. erosion, flooding and exposure to looting and/or vandalism).

Assess potential risks to known cultural resources as the result of emergency stabilization activities.

Coordinate with Federally recognized Tribes.

II. ISSUES

- Identify known/documented resources that have been subject to direct or indirect effects of fire.
- Identify emergency stabilization and/or protection needs for cultural resources within the fire.
- Other resources stabilization measures that may put cultural resources at risk.
- Consultation with appropriate parties to meet legal compliance and tribal consultation.

III. OBSERVATIONS

A. Background

The McLane Fire, Number 137000-9141-B2U2, was reported on August 9, 2005 at approximately 1530 hours. The fire was started when an agricultural burn conducted adjacent to the Hanford Reach National Monument (HRNM) on McLane Road escaped containment and rapidly spread into HRNM's Wahluke Unit. The fire demonstrated extreme fire intensity on over 80% of the fire area as it was pushed by gusting winds through the shrub-steppe community. The fire exhibited long residence time within the riparian area trees and heavy brush. The wet ground and dense vegetation made fire suppression efforts difficult. Of the total 6,850 acres burned by the McLane Fire, 6,088 acres are within the HRNM. The majority of the fire area is within the HRNM Wahluke Unit, although some private, state, Bureau of Land Management and Bureau of Reclamation lands to the east were also burned. The northern end of the burn area is located approximately two miles south of Highway 24 roughly between Mileposts 64-65, and extends southward for nearly six miles across both sides of the Grant County/Franklin County line.

The HRNM has a large number of historic and prehistoric sites recorded within its boundaries. Most of the historic properties are related to the Hanford Site's nuclear development, including the Manhattan Project, Cold War developments and cleanup activities associated with decommissioning of the facilities. In addition, there are pre-Hanford homesteads that were displaced in 1943 for the Hanford Site. The prehistoric component is primarily known from earlier work done by a number of archaeologists at large village sites along the Columbia River, as well as other sites located during National Historic Preservation Act, Section 106 compliance surveys.

The prehistoric cultural chronology of the Hanford Site area is taken from the *National Register of Historic Places Multiple Property Documentation Form – Historic, Archaeological and Traditional Cultural Properties of the Hanford Site, Washington* (U.S. Department of Energy 1997). The chronology summary states:

The prehistoric Columbia Plateau region has been impacted by basalt flows, catastrophic flooding, and environmental change which has meant that prehistoric regional inhabitants adapted their cultural subsistence systems as necessary to survive. The moist, cool conditions of the early Holocene meant that early peoples [12-15,000 B.P. to 8,000 years B.P.] were probably mobile, taking advantage of available resources in an organized fashion.

As the environment became drier after 8,000 years B.P., it is likely that the descendants of these early people developed a more mobile, generalized riverine-based economy. The arrival of a moist and cool environment at approximately 4,500 years B.P. was coupled with year-round residency and a hunter-gatherer subsistence pattern which was modified briefly at 3,800 years B.P.

Approximately four-hundred years later, circa 3,400 years B.P., the climate cooled once again but the sedentary lifestyle did not return to the study area until 3,000 years B.P. After this point, populations increased along the rivers as groups focused on salmon, roots and ungulates. A significant increase in storage and food processing activities were common to many people throughout the Columbia Basin although the mobility of the hunter-gatherer lifestyle remained a strong component into the ethnographic period (1997:2-1).

The area of the McLane Fire may have been used seasonally for gathering grass seeds and roots, hunting and acquisition of silicates and basalt from the area's glacial gravel deposits. It appears, however, that this area is far enough above the Columbia River and lacks evidence of springs or dry channels that would indicate a nearby water supply. Thus, it is believed that this area did not afford requisite resources for more-permanent settlement.

The Ethnographic/Contact Period (1805-1943) extends from the time of first Euroamerican contact to when Native Americans were excluded from settlement and/or use of the area. This period reflects both a continuity of earlier, pre-Contact lifeways and subsequent changes to Euroamerican building styles and incorporation of Euroamerican materials. During this period, Native groups ceded lands and were, for the most part, moved onto reservations. At the present time, the Federally-recognized Confederated Tribes of the Umatilla Indian Reservation, Yakama Indian Nation, Confederated Tribes of the Colville Indian Reservation, Nez Perce Tribe and the non Federally-recognized Wanapum have expressed interest in this area (U.S. Department of Energy 1997:3.4-3.35).

Euroamerican Resettlement on the Hanford Site (1805-1943): The Historic Period began with the passage of the Lewis and Clark expedition (1805-1806) through the area. Subsequent to this came the passage of missionaries, mining, ranching, establishment of trading posts, river travel and

community development (U.S. Department of Energy 1997:4.6-4.21). With the possibility of grazing and limited homestead use, the area within the McLane Fire appears to have been bypassed by historic development in favor of other locations with better access to water.

Hanford Development (1943-1990). The history associated with the Hanford Site and its nuclear development is included in *History of the Hanford Site 1943-1990* (Harvey n.d.) and *History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990. Manhattan Project 1943-1946, Cold War Era 1947-1990*. (U.S. Department of Energy 2002).

Since the McLane Fire occurred on lands that were acquired as a buffer for the Hanford Site, no development occurred from 1943-1950. Beginning in 1950, Cold War tensions resulted in military presence at Hanford. In 1950, the first 16 anti-aircraft artillery batteries were established to encircle and protect Hanford's nuclear reactors. The typical layout of a battery covered about 20 acres and had up to 20 associated buildings and structures. Beginning in 1954, the U.S. Army began supplementing the anti-aircraft artillery guns with NIKE surface to air missiles and, by late 1957-early 1958, had phased-out the artillery sites within the fire area (Harvey 2002:2-93 – 2-96). The battery sites were later razed at some unspecified date after their deactivation.

B. Reconnaissance Methodology and Results

BAER/U.S. Fish and Wildlife Service Archaeologist Dan Mulligan arrived at HRNM on August 17, 2005 and, after consultation and orientation with U.S. Fish and Wildlife staff at the HRNM headquarters office in Richland, Washington, went to the field. After examining cultural resource records and maps on file at the HRNM office and the nearby Pacific Northwest National Laboratory, he spent the remainder of August 17-18 inspecting the ~13.5-mile long, bulldozed fire suppression line that encircles the northern, western and southern extent of the McLane Fire area. Burn areas and suppression lines located east of the HRNM property boundary were not examined. The entire length of the HRNM suppression line was examined, with particular focus on identifying any suppression-related impacts to any known or previously-undocumented cultural resources located in the immediate vicinity.

Prehistoric Sites

HRNM cultural resource records indicate that no prehistoric sites or isolated finds have been previously documented within the McLane Fire area boundaries.

Historic Sites

Since the McLane Fire was located on the northeast side of the Columbia River, it did not affect sites related to the Hanford Historic District. The burn area, however, contained at least three site areas associated with at least one or more of the 16 anti-aircraft artillery positions that encircled the nuclear reactors. The McLane Fire burned over four documented site areas (45GR1301, 45GR1302, 45GR1297, 45GR1298) associated with these previously-removed military positions. Anti-aircraft batteries commonly covered up to 20 acres, so it may be assumed that several site numbers could refer to different activity areas of the same battery.

Due to the removal of above-ground features and bulldozing of most foundations, these sites primarily consist of access roads, small mounds of concrete rubble, concrete pads, areas paved with asphalt, a number of black locust trees, metallic debris and scattered cans that appear to date to the 1950-1960 period. While an unknown number of trees were killed by the quick-moving fire, most of the sites only saw partial vegetation consumption. The integrity of the sites have previously compromised by structure removal. Impacts to the remaining structures' and features' physical characteristics by the McLane Fire has not been determined. None of the sites were found during the August 17-18 reconnaissances. These sites are situated on flat terrain and, therefore, will not be subject to erosion.

Three previously-recorded sites (45GR520, 45FR521, 45FR531) are historic cisterns associated with the homesteading era. These sites typically consist of shallow depressions surrounded by wood and/or wire fencing and associated trash/can scatters. None of the sites are situated near the fire suppression line and none were found during the August 17-18 reconnaissances. Previous investigations at these sites indicate each was in poor condition when initially recorded. Impacts to the sites' physical characteristics by the McLane Fire have not been determined. Monitoring and evaluation of the fire's effects on the sites is recommended.

An undocumented, early-20th Century "old railroad grade" (no historic information, only referenced on the Hanford NE USGS quad map) is located adjacent to the northern stretch of fire suppression line. At one location, the suppression line diagonally bisects the grade. Given the lack of information about the grade, no additional recommendations have been determined at this time.

No previously-documented and no unrecorded sites were observed within the fire suppression line.

Additional Risks

Major village sites and historic sites were not observed or relocated within the McLane Fire area. Based on the lack of cultural resources noted during transects walked along the fire suppression line, it does not appear likely that fire suppression efforts have exposed unknown archaeological sites. The interior of the burned area was not examined. Additional ground inspections are recommended for areas where future ground-disturbing activities are to be implemented.

The primary threat to this area could be trespassing associated with the collection of historic debris exposed by destruction and removal of the burned area's vegetation. Additional ground inspections are recommended to pinpoint and document the locations and appearance of (or, lack thereof) both documented and previously unrecorded historic sites and artifacts.

IV. RECOMMENDATIONS

A. Emergency Stabilization – Fire Suppression Repair

Fire suppression activities did not impact prehistoric or historic sites.

B. Emergency Stabilization

No Emergency Stabilization specifications specific to cultural resources are advanced at this time. If ground-disturbing activities are proposed for other resources under emergency stabilization, Section 106 clearance, including appropriate tribal consultation, should be included in that Specification.

C. Rehabilitation

No rehabilitation specifications specific to cultural resources are advanced at this time. If ground-disturbing activities are proposed, Section 106 clearance, including appropriate tribal consultation, should be included in that specification.

D. Management Recommendations – Non-Specific Related

Wildland fire has the potential to adversely affect cultural resources, however it also offers the opportunity to perform inventories in areas that were previously inaccessible and in areas where fire has effectively removed ground cover that was obscuring sites. In this case, however, opportunities exist to inventory the unburned area between the fire area and the HRNM boundaries to the immediate north, south and west. Funding for this suggested activity should come from the unit's operating program and/or other funding sources. Given these conditions, the following non-specification recommendations are offered:

A systematic and comprehensive cultural resources inventory and site documentation in areas of high site probability should be carried out on hillslope benches and draws, including the transition from where the steep hill slopes level onto the flats, especially in areas where silicate gravels are found.

V. CONSULTATIONS

WA-SHPO – Archaeologist Dan Mulligan will initiate contact with the Washington State Historic Preservation Office via telephone and email on August 22, 2005 to relay there were no fire effects to cultural resources and that Section 106 NHPA procedures will be followed for any treatments that may affect cultural resources.

Pacific Northwest National Laboratory – Archaeologist Dan Mulligan initiated contact on August 18, 2005 with Darby Stapp, Project Manager, Cultural Resources Project Manager, Richland, Washington.

Confederated Tribes of the Umatilla Indian Reservation - Archaeologist Dan Mulligan initiated contact on August 16, 2005.

Yakama Indian Nation – Archaeologist Dan Mulligan will initiate contact on August 22, 2005.

Confederated Tribes of the Colville Indian Reservation – Archaeologist Dan Mulligan will initiate contact on August 22, 2005.

Nez Perce Tribe – Archaeologist Dan Mulligan will initiate contact on August 22, 2005.

Wanapum Tribe – Archaeologist Dan Mulligan will initiate contact on August 22, 2005.

VI. REFERENCES

David Harvey.

N.D. History of the Hanford Site 1943-1990. Pacific Northwest National Laboratory.

D.W. Harvey.

2002 Military Operations. In History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990. Manhattan Project 1943-1946, Cold War Era 1947-1990, Chapter 9. Hanford Cultural and Historic Resources Program.

United States Department of Energy.

1997 National Register of Historic Places Multiple Property Documentation Form – Historic, Archaeological and Traditional Cultural Properties of the Hanford Site, Washington. February 1997.

United States Department of Energy.

2002 History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990. Manhattan Project 1943-1946, Cold War Era 1947-1990. Hanford Cultural and Historic Resources Program.

**BURNED AREA EMERGENCY STABILIZATION PLAN
McLANE FIRE**

WILDLIFE RESOURCE ASSESSMENT

I. OBJECTIVES

- Assess effects of fire and suppression actions to Threatened, Endangered, Proposed and other significant state and federal agency listed species and their habitat, including birds, mammals, amphibians, reptiles, fish and insects.
- Initiate Emergency Section 7 Consultation as required by the Endangered Species Act.
- Assess effects of fire and suppression action to habitat improvements.
- Assess effects of proposed emergency stabilization actions to listed species and habitat.

II. ISSUES

- 11 agency (state and/or federal) listed wildlife species occur within the fire area, most of which are dependent on the shrub-steppe plant community.
- Potential effects to these species from the fire, suppression actions and potential post fire effects to shrub-steppe obligate species.
- Potential effects to these species from proposed emergency stabilization actions.

III. OBSERVATIONS

A. Background

The purpose of this Burn Area Emergency Stabilization (BAER) Wildlife Assessment is to document the effects of the fire, suppression actions, proposed emergency stabilization work, and potential post fire erosion, to all federally and state listed, agency sensitive and culturally significant mammals, birds, amphibians, reptiles, fish, invertebrates, and their habitats which may occur within or downstream from the fire area. This assessment also includes documentation on Emergency Section 7 Consultation, as required by the Endangered Species Act, with U. S. Fish and Wildlife Service. The species list is included in Appendix V of this report. The species list for the fire area was developed by Heidi Newsome, Wildlife Biologist, U. S. Fish and Wildlife Service (FWS), Hanford Reach National Monument/Saddle Mountain NWR. Species occurrence discussed in this assessment is based on formal surveys and habitat inventories conducted prior to the McLane Fire, and post fire reconnaissance. Documents, inventory data, sighting records, vegetation maps and other species specific information referenced in this report are on file at the Monument office.

The Hanford Site is located in the Pacific Flyway. Habitats within the fire area serve as resting areas for neotropical migratory birds. The Hanford site includes habitat for many wildlife species, including 40 mammals, 246 birds, 4 amphibians, 9 reptiles, 49 butterfly taxa, 318 species of moths, and 52 taxa of aquatic macro invertebrates. Species diversity on the Hanford Site can be attributed to the size, diversity and relatively undisturbed condition of the native shrub-steppe habitat.

B. Reconnaissance Methodology

Information used in this assessment is based on a review of relevant literature, agency management planning documents, agency wildlife sighting and habitat inventory data, communication with FWS, personal communication with agency biologists (listed at end of report), and reconnaissance of the fire area on August 9 and 11, 2005. Habitat information and mapping for the various species is based on agency records and post fire reconnaissance. Reconnaissance and analysis included review of other fires in the area to assess effects to species and vegetative recovery.

C. Findings

To better understand the species and habitat information discussed in this wildlife assessment, it is important to review the McLane Fire BAER Vegetation and Soils Resource Assessments. These reports contain more detailed descriptions of pre-fire vegetation, post-fire vegetative recovery estimates, and effects to the watersheds.

The purpose of this assessment is to discuss the potential effects of the fire, suppression actions and proposed emergency stabilization activities to federally and state listed and sensitive species which occur within the fire area. Effects to general wildlife species are not discussed. This assessment is not intended to definitively answer the many questions of effects to specific species that are inevitably raised during an incident such as the McLane Fire. The focus of this assessment is to determine the potential for immediate, emergency actions that may be necessary to prevent further effects to these species. Because the species discussed in this assessment have ranges or territories which extend beyond the fire area, it may be important to include information at a larger scale, across land ownership boundaries, for species which may require assessment for long term rehabilitation or restoration needs.

BIOLOGICAL EVALUATION

Direct effects as described in this report refer to mortality or disturbances that result in flushing, displacement, harassment or mortality of the animal. Indirect effects refer to modification of habitat and/or effects to prey species.

SHRUB-STEPPE DEPENDENT WILDLIFE SPECIES

The community of plants and animals found in this area represents one of the largest remaining examples of the shrub-steppe ecosystem that once covered the Columbia River Basin. Termed a biological treasure, the Monument contains rare, rich and diverse shrub steppe ecosystem flora and fauna that has been lost elsewhere due to habitat conversion, fragmentation and application of pesticides. The shrub-steppe ecosystem supports an unusually high diversity of native plant and animal species, including significant breeding populations of nearly all steppe and shrub-steppe dependent wildlife. This area serves a critical role in contributing to the local, regional, national and international ecological integrity of the shrub-steppe ecosystem.

While fire has played an integral role in the history of the shrub-steppe environment, the region's historical fire regime has been greatly altered from socio-political and economic factors. Coupled with the arrival of invasive species and noxious weeds, this has weakened the natural recovery processes of the shrub steppe ecosystem from disturbance events such as fire. Several areas

considered sensitive shrub-steppe plant communities were located within the fire perimeter. These vegetation communities provide rare and unique habitat that is critical for meeting FWS regional, national and ecosystem goals and objectives. Managing for biological integrity in this area necessitates that actions be taken to mitigate the ecological effects increasing fire frequency and intensity, and invasion of exotic species.

The McLane Fire resulted in significant negative effects to plant communities through removal of approximately 90 percent of the sagebrush, antelope bitterbrush and associated plant cover. Sagebrush is a food source and/or provides nesting, resting, thermal and escape cover for a wide variety of species. Other value for wildlife includes the thick canopy which protects understory vegetation that can be a valuable food source for wildlife. Wildlife species in the fire area that are dependent on the sagebrush shrub-steppe and have federal or state listing status include: Ferruginous hawk, loggerhead shrike, sage sparrow, Washington ground squirrel, pygmy rabbit, black tailed jack-rabbit, sagebrush lizard and striped whipsnake. The fire also impacted riparian areas within the fire area.

Wildlife Species of Concern:

McLane Fire Species List

On August 16, 2005, current species lists for the McLane Fire area were obtained from U. S. Fish and Wildlife, Ecological Services Office, Wenatchee, Washington. The Hanford Reach National Monument was declared on June 9, 2000. At that time, President Clinton directed the FWS to manage the Hanford Reach National Monument to protect all of the species associated with the shrub-steppe ecosystem. Included in the Memorandum of Understanding between FWS and DOE for management of the Hanford Reach National Monument, the primary objective of the FWS is to ensure that the Monument is operated and managed for the protection and preservation of the native shrub-steppe habitat and its associated wildlife species. The federal agencies are also charged with managing for species of importance to the Native American Tribes. Therefore, the following species are included in this assessment. This list was developed by Heidi Newsome. For plant species of concern see Vegetation Assessment.

<u>SPECIES</u>	<u>LISTING STATUS</u>
Ferruginous hawk, <i>Buteo regalis</i>	FSC/ST
Loggerhead shrike, <i>Lanius ludovicianus</i>	FSC/SC
Sage sparrow, <i>Amphispiza belli</i>	FSC/SC
Sage thrasher, <i>Oreoscoptes montanus</i>	FSC/SC
Greater sage grouse, <i>Centrocercus urophasianus</i>	FSC/ST
Washington ground squirrel, <i>Spermophilus washingtoni</i>	C/SC
Pygmy rabbit, <i>Brachylagus idahoensis</i>	E/SE
Black-tailed jackrabbit, <i>Lepus californicus</i>	SC
Striped whipsnake, <i>Masticophis taeniatus</i>	SC
Sagebrush lizard, <i>Sceloporus graciosus</i>	FSC/SC
Mule deer, <i>Odocoileus hemionus</i>	TI

The following listed species were identified as occurring, or having habitat within Franklin and/or Grant County. Through post fire reconnaissance and consultation with local experts, it was determined that these species were not affected by the fire because they have no habitat within or adjacent to the fire area, and/or inventories prior to the fire determined absence, or the fire is outside of the species range or season of use. For plant species of concern see the Vegetation Assessment.

Bald eagle, <i>Haliaeetus leucocephalus</i>	T/ST
Bull trout (<i>Salvelinus confluentus</i>)	
– Columbia River distinct population segment	T/SC
California floater (<i>Anodonta californiensis</i>), mussel	FSC/SC

Columbian sharp-tailed grouse (<i>Tympanuchus phasianellus columbianus</i>)	FSC/ST
Burrowing Owl (<i>Athene cunicularia</i>)	FSC/SC
Giant Columbia spire snail (<i>Fluminicola columbiana</i>)	FSC/SC
Kincaid meadow vole (<i>Microtus pennsylvanicus kincaidi</i>)	FSC
Long-eared myotis (<i>Myotis evotis</i>)	FSC
Northern goshawk, <i>Accipiter gentilis</i>	FSC/SC
Long-billed curlew, <i>Numenius americanus</i>	FSC/SM
Pallid Townsend's big-eared bat, <i>Corynorhinus townsendii pallascens</i>	FSC/SC
Northern leopard frog (<i>Rana pipiens</i>)	FSC/SE
Pacific lamprey (<i>Lampetra tridentata</i>)	FSC
Redband trout (<i>Oncorhynchus mykiss</i>)	FSC
River lamprey (<i>Lampetra ayresii</i>)	FSC
Western brook lamprey (<i>Lampetra richardsoni</i>)	FSC
Columbia clubtail (<i>Gomphus lynnae</i>), dragonfly	FSC
Elk, <i>Cervus elaphus</i>	TI

KEY TO LISTING STATUS:

E	FEDERAL ENDANGERED
T	FEDERAL THREATENED
C	FEDERAL CANDIDATE
FSC	FEDERAL SPECIES OF CONCERN
SC	STATE CANDIDATE
SE	STATE ENDANGERED
ST	STATE THREATENED
SS	STATE SENSITIVE
SM	STATE MONITOR
TI	TRIBAL IMPORTANCE

FERRUGINOUS HAWK

Ferruginous hawks are a federal species of concern, a federal Migratory bird of Conservation Concern (USFWS 2002) and a state Threatened species. Ferruginous hawks are migratory raptors that occur on the Hanford site during the breeding season from early March through August. The incubation period is 28-33 days with fledging at 44-48 days from the date the egg is laid. There is one known historical nest location approximately three miles from the fire area (See Appendix IV). The fire area is well within the foraging area for this nesting territory. The record of the nest in this area is from 1995. However, nesting raptors are not monitored every year on the Monument, and historic nest locations may be re-used in later years. Ferruginous hawks do demonstrate nest site fidelity, returning to the same nesting territories in subsequent years. The fact that this territory was not used during this season does not mean that it would not be viable in future years. Many territories in Eastern Washington are unoccupied due to the current decline in the population of Ferruginous hawks in Washington. Available nesting territories are not currently thought to be limiting the population and, if the population rebounds, currently unoccupied areas may become occupied (Watson 2003). Ferruginous hawks are sensitive to human presence, and will abandon their nests if subject to human encroachment. Activities (especially noisy ones) near nesting sites should be limited during the breeding and fledging season.

Ferruginous hawks prey on a variety of mammals, birds, reptiles and insects, depending upon local area and prey abundance. These hawks may forage up to 15 km (approximately 9 miles) from their nest site; however, nest success may be greater in areas where abundant forage is in close proximity to the nest location. Areas where prey densities are high generally have greater successful nesting attempts. The average home range size of Ferruginous hawk in Washington state may be as large as 7,660 acres (31 sq. km = 11 sq. miles), based on hawks traveling considerable distances to forage (WDFW 1996).

FIRE IMPACTS: The entire 6068 acres of the McLane Fire can be considered Ferruginous hawk habitat. Impacts to Ferruginous hawks from the McLane Fire are indirect and include a reduction of habitat diversity that supports prey for Ferruginous hawks, reduction of habitat for foraging and nesting Ferruginous hawks, and reduced potential for this historic nesting area to be re-occupied in future years. The Washington Department of Fish and Wildlife considers the Ferruginous hawk a priority species for management and recognizes that they benefit from land-use practices that ensure an adequate prey base. WDFW recommends that Landowners/managers should protect shrub-steppe and grassland habitats that harbor significant populations of small mammals and other prey (Richardson et. al. 2004). Further, WDFW recommends reseeding of native plant species after chaining or burning to promote habitat stability and to benefit Ferruginous hawk prey populations (Richardson et al. 2004, Olendorff 1993). Therefore, stabilization and rehabilitation of the habitat lost in the McLane fire in and around the historic nest location is essential, to support an abundance of prey species, and to develop critical foraging and nesting habitat for the Ferruginous hawk. Stabilization and rehabilitation of suitable habitat for nesting and foraging around these historic nest sites is likely critical for the recovery of this species in Washington state.

LOGGERHEAD SHRIKE

The Loggerhead shrike is a neo-tropical migrant species that breeds on the Monument. Loggerhead shrikes are a federal species of concern, listed as a Migratory bird of Conservation Concern (USFWS 2002), and are a state Candidate for listing as a Threatened species. There are documented sightings of shrike in the fire area during the breeding season (See Avian Habitat and Sensitive Wildlife Maps). Further, it is likely that there were additional breeding territories in the fire area based on habitat prior to the fire and the fact that this area has not been systematically surveyed for shrikes. One shrike was seen during post fire reconnaissance (see photo documentation).

Loggerhead shrikes are common on the Hanford site from early March until the end of August. After August numbers are reduced but individuals have been sited through early November. Loggerhead shrikes require mature sagebrush, or other shrubs, for breeding and foraging habitat. Shrikes are most abundant in habitats of relatively high horizontal and vertical structural diversity (Poole 1992). This species builds its nest within shrubs, and requires some sort of shrub or other habitat feature when foraging for impaling its prey. The species is well known for its unusual and complex behavior of impaling prey on sharp objects in conspicuous places or wedging prey in narrow V-shaped forks (Yosef 1996). The primary prey items of this species are insects (e.g., beetles, grasshoppers), although small mammals, small birds, and lizards are also taken as prey (Yosef 1996). Loggerhead shrikes are highly territorial, and they exhibit a high level of nest site/territory fidelity. Poole (1992) found that shrikes defended territories averaging 34.4 acres (4.9 ac) on the Hanford Site in Washington. Also on the Hanford Site, of 113 territories studied, 96% were reoccupied the following season (Poole 1992). Shrikes remain in breeding territories as fledglings for 3-4 weeks after leaving the nest. This post fledging period is the time of highest mortality for shrikes, when young birds are weak fliers and are vulnerable to predation (Poole 1992). The McLane fire burned during this critical time period.

The Loggerhead shrike is one of the few North American passerines whose populations have declined continent wide in recent decades (Yosef 1996), and in Washington Breeding Bird Survey data for the Columbia River Basin shows a significant decline in the shrike population over the last 26 years (Vander Haegen 2004). Burning and wildfires may create the greatest risk to local shrike populations because the damage is immediate and regeneration to pre-burn condition may take up to 30 years (Harniss and Murray 1973).

FIRE IMPACTS: The 4976 acres of shrub-steppe habitat that was burned in the McLane fire can be considered habitat for Loggerhead shrike, 2356 acres of that area can be considered high quality breeding habitat (see Avian Habitat map). Impacts from the McLane fire to the shrikes are both direct and indirect and include greater mortality to fledgling young in the fire area due to loss of hiding cover, loss of prey base, loss of habitat for nesting and foraging, and loss of structural diversity of habitat required for shrike utilization of the area. Because shrikes exhibit fidelity to

nesting territories, individuals that attempt to return to former territories in subsequent breeding seasons will find them void of nesting cover and structure. Additionally, displacement of individual breeding pairs into other areas may increase inter- and intraspecific competition for nesting territories. If suitable habitat areas were already occupied by breeding pairs, displaced pairs may not be able to locate territories, or will be forced to utilize marginal habitat types. Breeding success would likely decline for pairs that have been displaced by fire impacts to their breeding habitat. One individual Loggerhead shrike was observed during post-fire reconnaissance.

The Washington Department of Fish and Wildlife considers the shrike a priority species for management and provides the following management recommendations for loggerhead shrike habitat: retain shrub-steppe communities, especially big sagebrush and mixed shrub communities, avoid wildfires and activities that may increase invasion by exotic vegetation, avoid management activities that increase cheatgrass invasion or increase risk of wildfire (Vander Haegen 2004, Leu and Manuwal 1996). Stabilization and rehabilitation of the habitat within the fire area is critical for Monument management of this declining species.

SAGE SPARROW

Sage sparrows are a federal Migratory bird of conservation concern (USFWS 2002), and a state Candidate for listing as a threatened species. Sage sparrows are a migratory sparrow present in the Columbia Basin during the breeding season from early February until the end of September. Sage sparrows prefer semi-open habitat with evenly spaced shrubs 1-2 meters high (Martin and Carlson 1998). This species is associated with sagebrush throughout its range. Sage sparrows forage on the ground for seeds and invertebrates. On the HRNM/SMNWR, sage sparrows are abundant in areas that retain big sagebrush communities. The Hanford Site, along with the Yakima Training Center to the west, supports the largest contiguous habitat patches in Washington for this state Candidate species. Exceptional habitats with apparent high densities of Sage Sparrows are found in big sagebrush stands along the base of the Saddle Mountains, throughout sagebrush habitats on the Columbia River plains, and within Central Hanford. Sage sparrows are confirmed breeders on the site, and they frequently raise more than one brood per season. They are territorial and exhibit site fidelity to nesting territories. Flocks of juveniles are frequently observed along roadsides from late May through throughout the beginning of August.

FIRE IMPACTS: The 4976 acres of shrub-steppe habitat that was burned in the McLane fire can be considered habitat for sage sparrow, 2356 acres of that area can be considered high quality breeding habitat (see Avian Habitat map). Adult sage sparrows had probably initiated their second or third nesting effort; these nests were probably destroyed by the fire. Although sage sparrows are mobile animals, their individual behavioral site fidelity to their nesting territories may have increased their susceptibility to direct loss during the fire. Large flocks of juvenile sage sparrows are generally observed during this time period. These recently fledged birds may have been displaced due to the fire. The big sagebrush vegetation within the burn area experienced mortality of 90 percent of the sagebrush plants. Therefore, virtually the entire available sage sparrow habitat in the fire area was lost as a result of the fire. Due to the loss of shrub cover, surviving adult birds with established territories likely returned to a highly altered habitat condition. These birds were most likely displaced due to the fire. Because sage sparrows exhibit fidelity to nesting territories, individuals that attempt to return to former territories in subsequent breeding seasons will find them void of nesting cover and structure. Additionally, displacement of individual breeding pairs into other areas may increase inter- and intraspecific competition for nesting territories. If suitable habitat areas were already occupied by breeding pairs, displaced pairs may not be able to locate territories, or will be forced to utilize marginal habitat types. Breeding success would likely decline for pairs that have been displaced by impacts to their breeding habitat from the fire.

The increasing frequency and intensity of range fires in Great Basin pose significant threat to native grasses and shrubs. Historically, fires were infrequent, and perennial grasses and shrubs were not adversely affected. With increased fire frequency, native plants are killed and seed

reservoirs of grasses and shrubs are depleted and replaced with exotic annuals, such as cheatgrass (*Bromus tectorum*). Sage Sparrows abandon former habitats once invaded by cheatgrass (Martin and Carlson 1998). Thus, replacement of native vegetation by cheatgrass in areas disturbed by the fire will decrease the available habitat for sage sparrows. Because sage sparrows require open areas and bare ground for foraging, changes in vegetation structure and loss of sagebrush due to the fire will impact foraging by sage sparrows. Stabilization and rehabilitation of this area to prevent the spread of cheat-grass and to replace lost shrub habitat is essential to maintain this area for sage-sparrows.

SAGE THRASHER

Sage thrashers are a neotropical migratory bird species present on the Hanford Reach National Monument in low numbers from early April through September. The Washington State Candidate Sage Thrasher is found at Hanford primarily in patches of big sagebrush and three-tip sagebrush. The sage thrasher is a species that is highly dependent on healthy shrub-steppe communities comprised of tall, dense sagebrush (*Artemisia* spp.). Sage thrashers are closely associated with sagebrush and are considered obligates of sagebrush communities (Vander Hagen 2003).

In order to maintain sage thrasher populations, shrub-steppe communities should be left in reasonably undisturbed condition and fragmentation should be minimized. Management activities that increase cheatgrass invasion or increase risk of wildfire also must be avoided (Vander Hagen 2003). Burning may lead to serious negative impacts to local sage thrasher populations because the damage is immediate and regeneration to pre-burn condition may take up to 30 years (Harniss and Murray 1973).

FIRE IMPACTS: Sage thrashers are mobile animals and would have been able to move out of the fire area. Dense sage areas on the Wahluke Unit of the Monument provide sage thrasher habitat. The McLane fire burned through the eastern portion of the Wahluke unit, however, some areas of dense sage remain near the western and southern edges of the burn and it is likely that sage thrashers could have found refugia adjacent to the fire affected area. Therefore there may have been no direct effects to sage thrashers. A total of 4976 acres of sage brush habitat within the burned area experienced a mortality of 80 to 90 percent of the sagebrush plants. The elimination of sagebrush within the fire area will have long term impacts for sage thrashers. All available habitat (mature sage brush) was impacted by the fire. Long term effects would include displacement of sage thrashers from the burn area. It is anticipated that this species will not return until the sagebrush recovers to maturity and provides the necessary habitat structure to support sage thrashers. It is unknown if potential re-colonizing populations exist nearby.

GREATER SAGE GROUSE

Greater sage grouse are listed as a state Threatened (Washington) and a federal species of concern. Two small, disjunct remnant populations of sage grouse occur in Washington State. One population is in Douglas County approximately 75 miles north of Hanford, and the second is on the Army's Yakima Training Center (YTC) in Yakima and Kittitas Counties just northwest of the Hanford Site. The Douglas County population is estimated at 600 - 700 birds and the YTC population at 300 - 400 birds. As recently as 1999 the YTC population appears to have begun to expand into that portion of the Monument included in the ALE Unit. Several sage grouse sightings were made in 1999 and 2000 in the vicinity of Rattlesnake Springs and Benson Ranch. However, no recent sightings have been recorded on the Wahluke unit of the Monument.

Western sage grouse nesting habitat in southeastern Washington is primarily sagebrush-steppe vegetation that is of relatively high quality (dominated by native species). Sagebrush intermixed with tall bunch grasses provides cover required for successful nesting. Brood rearing habitat includes the shrubs and tall grasses for escape cover, but also must include a mix of native forbs that provide both insects and high protein vegetation. Sage brush is an essential element for sage grouse during the late fall, winter and early spring, when the leaves of sage make up as much as 99% of the birds' diet.

An interagency working group was established in 1998 to assist with the recovery of the sage grouse in Washington. Several agencies (U.S. Army, U.S. Fish and Wildlife Service, the Washington Department of Fish and Wildlife, the U.S. Department of Energy, and the Yakama Nation) are working to preserve and restore sage grouse in eastern Washington State. It is noteworthy that the Hanford Site property (Monument area) was identified as one of the few large land areas having contiguous and high quality habitat suitable for sage grouse recovery and expansion.

FIRE IMPACTS: Loss of habitat (nesting habitat, winter and summer shelter habitat, escape cover losses and food resources lost). Recovery of sage grouse habitat in this area will probably take many years. In addition, the forbs and invertebrates which are the preferred food for this species were effectively eliminated throughout most of the fire area. Regionally, the loss of 4976 acres of sagebrush habitat represents a significant decrease of suitable habitat for this species. This habitat loss may delay or prohibit recovery of the western sage grouse in the State of Washington.

Due to the significant amount of habitat lost, and because any remaining sagebrush does not occur in the large blocks apparently needed for survival, it is expected that this area will not support sage grouse for 30 or more years. The arid nature of the site may further delay recovery because germination and growth of shrub species depends upon amount and timing of available moisture.

SAGEBRUSH LIZARD

The sagebrush lizard is a federal species of concern and a state candidate species for listing as a threatened species. Sagebrush lizards emerge from hibernation in April. Mating occurs in April and May, and females lay their eggs in June, burying them in loose soils at the base of a shrub. Hatching normally occurs in August (Storm and Leonard 1995). Recent research in Oregon suggests that the Sagebrush Lizards are limited to habitats that have sandy soils. In Washington, all recently confirmed sites are associated with sand dunes or other sandy habitats (Hallock and McAllister 2005). A significant portion of the fire area qualifies as habitat for the sagebrush lizard, based on soils and vegetation types (see sensitive wildlife maps –Appendix V). The Washington Department of Fish and Wildlife recommends that any activities that alter these habitats, such as conversion to agriculture and/or activities that promote the invasion of cheat grass (*Bromus tectorum*), are likely detrimental to Sagebrush Lizard populations (Hallock and McAllister 2005). Therefore, preventing encroachment by cheat grass post fire is important in maintaining the habitat for Sagebrush lizards within the fire area. Stabilization of the fire area with native grass species will be important for management of this species.

FIRE IMPACTS: The 4976 acres of shrub-steppe habitat within the fire perimeter of the McLane fire can be considered sagebrush lizard habitat, with 2012 acres of this area being considered high quality breeding habitat for sage brush lizard (see Sensitive Wildlife map and Lizard habitat map). The lizard young were probably small hatchlings, and it is likely that within the fire area, young of the year were lost during the McLane fire. Adult lizards may have also been lost in the fire because they seek shelter within shrubs. Shrubs have longer fire residency times and burn hotter than surrounding grasses, and therefore lizards likely experienced direct mortality. Those adult lizards that survived the burn are probably now exposed to predation as removal of the shrubs would remove any hiding cover. Greater predation by avian and other predators post-fire is expected, which will reduce the population of sagebrush lizards in the fire area. Because little detail is known about the life history and habitat requirements of this species, protecting the lizard's habitat (based on the few known requirements) is important to managing for the population on the Monument. Preventing the invasion of cheat grass post-fire is also essential for maintaining the population of sagebrush lizards within the fire area.

STRIPED WHIPSNAKE: Striped whipsnakes occur in the Columbia Basin of Central Washington up to 1,985 feet elevation. The striped whipsnake is a long slender snake that is dark above with alternating light and dark stripes down the length of the body. Adults range in size from 90 to 180 cm total length. This species is rare throughout most of the Washington portion of its range. Striped whipsnakes have been documented in Washington only 26 times. In the last decade, only 3 observations have been reported. This species occurs in low elevation arid regions with scattered vegetation, and open rocky areas. Mating occurs in the spring with eggs being deposited in June, and hatching in the late summer or early fall. This species has been documented to occur at the Hanford site. Little is known about the habitat requirements in Washington. The areas of Grant County where they occur have relatively undisturbed shrub-steppe habitat with a low cover of cheatgrass.

FIRE IMPACTS: The entire 4976 acres of shrub-steppe habitat that burned during the McLane fire can be considered striped whipsnake habitat. If present during the fire, striped whipsnakes could have experienced mortality if unable to move quickly or find a burrow. Those that survived would experience temporary displacement. Eggs exposed to heat would have been rendered unviable. Suppression actions which included blading of soils to remove vegetation may have exposed nest sites to environmental conditions and predators and/or destroyed nest sites. Prey species are primarily lizards, but may include rodents, bats, frogs, birds, and other snakes. Habitat within the fire area for any of these species was greatly reduced. Therefore, prey species may be less available for the striped whipsnake until the habitat recovers and is repopulated by the various prey species. Invasion of cheat grass into the fire area will reduce the likelihood that this area would recover into habitat that could support striped whipsnakes.

WASHINGTON GROUND SQUIRREL

This area is also potential habitat for the Washington Ground Squirrel, a federal and state candidate for listing as a Threatened species. Approximately 1584 acres within the fire area could be considered potential habitat for Washington ground squirrel based on analysis of vegetation and soils (J. Meisel unpublished data 2005). The Washington ground squirrel is a brownish-gray squirrel with conspicuous white spots on the dorsum. This species occurs only in Washington east of the Columbia River. It prefers sandy soils in dry, open, sagebrush and grassland habitats. This species hibernates 7-8 months per year from June/July through January/February. These squirrels eat succulent vegetation and bulbs in early spring and seeds in the early summer. Burrows are usually about ≤ 3 inches in diameter and entrances are often hidden under bushes or rocks (Yensen and Sherman 2003). There are no known burrows within the fire area; however this area has not been thoroughly surveyed to date. Regionally, the loss of 1584 acres of potential habitat represents a significant decrease of suitable habitat for this species. This habitat loss may delay or prohibit recovery of the Washington ground squirrel in the State of Washington.

FIRE IMPACTS: Any Washington ground squirrels within the fire area would have been hibernating during the fire. However, depending upon heat and fire intensity, animals may have suffered mortality within their burrows. The removal of shrub cover will impact the habitat for Washington ground squirrels which require shrubs for hiding cover as protection from predation. Further, the potential conversion of native bunch grass areas to annual grasses (cheat grass) will impact the habitat for Washington ground squirrels. Habitat degradation of rangelands and shrub-steppe areas is recognized as a major cause of decline in this species (Yensen and Sherman 2003). Stabilization and rehabilitation of the area is important to maintain the potential for the area to eventually support Washington ground squirrels.

COLUMBIA BASIN PYGMY RABBIT

This species is extremely rare in Washington, occurring only in the Great Basin portion of the Lower Columbia Basin and was emergency listed as a Federally endangered species in November of 2001. The pygmy rabbit is limited to habitat types which contain tall dense sagebrush and specific soils with limited content of sand for constructing its burrows. Field observations of the pygmy rabbit indicate heavy reliance on sagebrush, primarily on the seed

heads and vegetative leaders. Pygmy rabbit diet is comprised of 99% sagebrush in winter and 51% in summer.

FIRE IMPACTS: Prior to the fire, this area of the Wahluke Unit supported approximately 1584 acres of potential habitat for Columbia basin pygmy rabbit, based on a GIS analysis of soils and vegetation (J. Meisel unpublished data, 2005). The stabilization of sagebrush cover in this area is critical to developing potential habitat and reintroduction areas for pygmy rabbit. This area may be important for the eventual recovery of pygmy rabbit in Washington. Regionally, the loss of 1584 acres of potential habitat represents a significant decrease of suitable habitat for this species. This habitat loss may delay or prohibit recovery of the pygmy rabbit in the State of Washington.

BLACK-TAILED JACK RABBIT

The entire 6,068 acres of the McLane fire can be considered black-tailed jackrabbit habitat. The black-tailed jackrabbit was once abundant throughout the Columbia Basin. Recent precipitous declines in populations of these hares have raised concerns regarding their distribution and status throughout the region. This species is closely associated with the sagebrush steppe ecosystem. Black-tailed jackrabbits rely on sagebrush structure for breeding sites and hiding cover, and require sage-brush vegetation as forage during winter months. Black-tailed jackrabbits breed from late February to mid-July, with gestation lasting 41 to 47 days (Flinders and Chapman 2003). They can have two to six litters per year, with local populations likely tending towards the low end of this scale (Flinders and Chapman 2003). Hares, unlike rabbits, do not use burrows. They place their young in shallow depressions in the soil called forms. Jackrabbits are generally solitary and primarily nocturnal. They are vulnerable to predators including, coyotes, bobcats, foxes, hawks, owls, and snakes. Loss of habitat due to agricultural and human development has impacted jackrabbit populations. The fragmentation and isolation of populations residing within remnant habitat areas has probably increased their vulnerability to stochastic events (e.g. severe weather, disease, fire, etc.) and has limited the re-colonization of areas that could potentially support jackrabbit populations.

FIRE IMPACTS: Black-tailed jackrabbits are known to be relatively fast moving animals. Because these animals are highly mobile, it is anticipated that they would have been able to move out of the way of the fire. However, recently birthed young were likely consumed in the fire as they would not have been able to flee. Black-tailed jackrabbits are primarily nocturnal and one black-tailed jackrabbit was killed on the road during the fire (see photo documentation). It is assumed that this animal was hit by a vehicle during night hours. The loss of sagebrush structure and cover reduces the amount of hiding cover for this species, and will increase the vulnerability of jackrabbits to predation. Additionally, the loss of a significant continuous stands of sage exacerbates this effect, because smaller patches do not provide escape cover. If jackrabbits are chased out of the remaining small patches of cover, they will be forced into the open burned over areas and be easily captured and consumed. Impacts to the local jackrabbit population will also affect those animals that prey on jackrabbits, as jackrabbit numbers decrease there will be less forage for other animals that prey upon jackrabbits.

MULE DEER

Mule deer are a common resident ungulate of the Hanford area. The area of highest density is along the Columbia River. The deer population in the Hanford area is relatively stable. In the Wahluke Unit, deer can be hunted during regular state seasons using shot gun /muzzleloader /or archery. Mule deer are primarily browsers and rely on riparian vegetation and bitterbrush for browse. The deer tend to find shade for thermal cover in and around the riparian areas that were burned in this fire.

FIRE IMPACTS: Mule deer are highly mobile animals, and it is anticipated that they were able to move out of the affected area during the fire. Recently born fawns, however, may not have been able to move out of the way of the fire, although no mortality of deer fawns was documented during post fire reconnaissance. The greatest impact to mule deer within the burn area is loss of

available forage. Regrowth of grasses in upland areas is not anticipated until fall rains begin, possibly in November. Mule deer may forage off of the burn area on private lands, however, because deer are more solitary than herding ungulates (e.g. elk) agricultural depredation is not usually an issue with deer. Additionally, deer may also experience some nutritional stress due to loss of forage due to the fire. Lactating does may be at the greatest risk of this type of stress because of the energy demands that lactation produces.

IV. RECOMMENDATIONS

A. Fire Suppression:

Determinations of effect: The fire, suppression actions and proposed emergency stabilization had no affect to the federally listed species, due to the fact that no listed species occur within the fire area. Therefore there is no need for emergency Section 7 Consultation for the McLane Fire stabilization and emergency rehabilitation.

B. Emergency Stabilization:

Recommendations with Specifications:

- #2 - Non-native Invasive species control, Native seeding. This specification is critical, as mentioned above in wildlife species assessments, to stabilize the ecological integrity and condition of the burned area and to create a trajectory of recovery that will eventually result in viable habitat conditions for all 11 of the listed species addressed above.
- #3 - Non-native Invasive species control, Native plantings. This specification is critical, as mentioned above in wildlife species assessments, to stabilize the ecological integrity and condition of the burned area and to create a trajectory of recovery that will eventually result in viable habitat conditions for all 11 of the listed species addressed above

C. Management recommendations (Non-Specification Related):

- Permanent photo points and monitoring plots should be established in key wildlife habitat locations to monitor habitat recovery. This should be coordinated with the vegetation monitoring as recommended in the McLane Fire BAER Vegetation Report.
- Small mammal monitoring should be conducted using live traps and should be expanded as needed to determine prey species abundance for the various fire affected species. Reptile monitoring should be conducted and should be expanded as needed to determine potential effects of the fire and associated habitat loss on reptiles.

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BURNED AREA EMERGENCY STABILIZATION PLAN

McLane Fire

VEGETATION RESOURCE ASSESSMENT

I. OBJECTIVES

- Evaluate and assess fire and suppression impacts to vegetation resources and identify values at risk associated with vegetation losses.
- Identify and locate threatened and endangered plant species impacted by fire and/or suppression actions.
- Determine emergency stabilization and monitoring needs supported by specifications to aid in vegetation recovery and soil stabilization.
- Evaluate the potential for invasive species encroachment into native plant communities within the fire area.
- Provide management recommendations to assist in vegetation recovery, watershed stabilization, site productivity and species habitat protection and rehabilitation.

II. ISSUES

- Protection and enhancement of other resource values including site productivity, wildlife habitat, vegetation resources, cultural resources and watershed stability.
- Determine impacts of fire to three state listed threatened, endangered and sensitive plant species and/or habitat.
- Management strategies which provide for the stabilization, natural regeneration and recovery of impacted areas.
- Immediate stabilization of denuded (i.e. vegetation has been removed) soils that may impact ecological function
- Stabilization of watershed and riparian areas around wetland ponds and canal areas
- Monitoring of the planting/seeding effectiveness of emergency stabilization efforts.
- Monitoring of impacted lands for the early detection and control of invasive and noxious weed species.

III. OBSERVATIONS

This report identifies and addresses known and potential impacts to vegetation resources within the McLane Fire area, Wahluke Unit of the Hanford Reach National Monument. The burned area consists of approximately 6850 acres of contiguous area, 6068 of which were within the boundaries of the Hanford Reach National Monument (Monument), and 782 of which were east of the Monument on private, state and Bureau of Reclamation (BOR) and Bureau of Land Management (BLM) (federal) lands. The vegetation resources can be described as Columbia Basin shrub-steppe plant communities, many of which are considered high-quality or sensitive vegetation. Additionally, the burned area includes riparian zones surrounding the irrigation return wasteway, WB -10 (White Bluffs) ponds impacted by the fire. This artificial "community type" includes lakeshores, riparian areas, and wetlands on the North Slope that have

been converted from shrub-steppe due to accumulated run-off from irrigated agriculture. Communities in these wetlands are typically dominated by non-native species such as tamarisk and Russian olive, but also support native willows, cattails and black cottonwood. Although artificial, these areas can provide valuable wildlife habitat, especially for amphibians, birds and bats in an otherwise arid landscape. These vegetation resources provide forage and cover for a variety of wildlife species, aesthetic values, watershed stability, and biologically diverse plant associations. Findings and recommendations contained within this assessment are based upon field reconnaissance of the fire area, interviews with local resource specialists, local land managers, and review of relevant documents and literature.

This report will detail the known damage to the vegetation and soil resources; will discuss re-vegetation processes and future monitoring criteria, and will outline management considerations for recovery of vegetation resources.

A. Reconnaissance Methodology and Results

Ground reconnaissance was conducted on August 9 and 11, 2005. Photographs were taken and are in the photo documentation section of this plan. Within upland portions of the fire area (4976 acres of upland shrub-steppe habitat), the fire burned in a mosaic pattern on approximately 30 % of the fire area, which experienced a 50-80% vegetation mortality and loss of standing biomass (cover). Vegetation resources were significantly reduced over the remainder of the fire area. The fire consumed 90% of the standing biomass of shrubs, grasses, forbs or killed remaining shrubs through heat scorch over approximately 70% of the fire area. Blowing dust and ash was observed in areas where all vegetation had been burned and the soils are no longer stabilized by the vegetation (please see photo documentation).

The Monument contains many endemic plant communities and species that have been lost or significantly reduced throughout all or a significant portion of their range. Sensitive plant communities have been defined as those that are foundation plant communities, representing historic conditions within the Columbia Basin eco-region and have been identified as either state ranked, globally rare, or ecologically significant within western shrub-steppe environments. The McLane fire damages/destroyed 2505 acres of plant communities identified as sensitive and ecologically significant, and may be irreplaceable or irrevocably damaged. See sensitive vegetation map in appendix V. Stabilization of these areas is critical to protect and prevent further degradation to these areas.

Within riparian portions of the fire area (1092 acres of Riparian habitat) the fire was less intense due to standing water and available fuel moisture. These areas experienced a 50% vegetation mortality and 40-50% loss of cover. The overstory of Russian Olive trees may continue to experience additional mortality over small portions of the fire area, however, much of the canopy cover remains in tact, while the understory plant cover has been reduced by 50-60%.

Literature and GIS data available at the Monument headquarters relating to vegetation resources in the area was consulted for baseline data relating to pre-fire conditions on the burned area.

1. Soils:

Soils within the fire area consist of slackwater fines from Pleistocene floods, sandy clay, sandy loam, and previously stabilized eolian dune systems. The Pasco Basin, and the entire region, is underlain by Miocene-aged basalt that is thousands of feet thick. While the basalt is exposed along the margins of the basin along uplifted anticlines, outcrops in the study area occur only near the crest of the Saddle Mountain anticline, which forms the northern edge of the basin. At lower elevations, the basalt is deeply cloaked beneath ancient sediments deposited by lakes and rivers that flowed into the basin between 8.5 and 3.4 million years ago (Ringold Formation, Late Miocene to Pliocene) and then by loads of sediment deposited during cataclysmic floods that occurred over a period of more than 1.5 million years (Hanford Formation, Pleistocene; Bjornstad and others 2001).

The Ringold Formation is comprised mostly of sand, silt and clay in its upper layers, some of which are

cemented by calcium carbonate (Lindsey 1996). At its maximum level, Ringold sediments filled the basin to at least approximately 275 meters elevation. Remnant uplands at this elevation are the Overlook, NIKE and Simmons benches¹, which are located near the east margin of the study area. Between these three benches and Saddle Mountain, the Ringold was carved into a drainage basin by an ancestral river as it flowed west across the study site to join the Paleo-Columbia River (Fecht and others, 2004). The lowest, incised channel(s) of this ancestral river was filled with sand-dominated sediments (Fecht and others, 2004). The sediments in the channel are equivalent in age to the Ringold lacustrine deposits and/or to Ringold paleosols.

Subsequently, between 3.4 and 2.0 million years ago a major drop in the base level occurred, which caused regional downcutting (Baker and others 1991). As a result, the Columbia River migrated eastward and began incising the Ringold Formation to create the White Bluffs and expanded the flood channelways (Baker and others 1991). Along the White Bluffs, the incised, sediment-filled Paleo-river channel was exposed at three sites: north of Saddle Mountain Lake, above Locke Island, and south of the Wiehl ranch (Fecht and others, 2004). The sand-dominated sediment in these exposures has less integrity than the surrounding White Bluffs matrix, and it is currently the primary source of material for active dune sets in the study area. The sandy substrate is typically stabilized to some extent by vegetation, except locally along dune ridges and in blowout dunes. The effectiveness of vegetation to stabilize sandy sites likely fluctuates over time in response to precipitation patterns, fire, physical disturbance, herbivory, and other changes in species dominance.

The McLane fire has removed approximately 80-90% of all vegetative cover within the upland areas of the fire area sandy soils exposed to wind erosion. High winds are prevalent within this area and wind speeds of 20 MPH plus are common. During field investigations it was noted that all ash had blown off of the sandy soils and dust clouds were visible moving soils and ash onto adjacent private agricultural lands. The soils underlying the McLane fire area are composed primarily of sands, and loamy sand (4955 acres) with a small amount of sandy loam (1113 acres). This high proportion (80%) of sandy soil is at risk of erosion due to high winds (see soils map).

High wind warnings are commonplace within the Monument and dust storms often suspend work within the Hanford Nuclear Site. State Highway 24 is north of the fire area, and Mt. Vista road is east of the fire and reduced visibility during high wind events is a concern for Monument managers. Emergency stabilization actions are required to reduce soil erosion, protect site productivity and protect life and property in and around the fire zone.

A large dust storm moved through the fire area and the entire Columbia Basin on August 12, 2005. Winds of 32 mph with gusts to 43 mph were associated with this storm, considerable soil erosion was observed in the fire area during this event, increasing the need for emergency stabilization of soils to reduce wind driven erosion.

2. Vegetation:

The McLane fire burned approximately 6068 acres of federal lands south of Highway 24 on the eastern portion of the Wahluke Unit of the Monument. The Monument area was identified as unique and deserving of full protection by Presidential proclamation in 2000. One of the unique features of the Monument that contributed to its establishment is the diversity and vast size of native plant communities. The area has been surveyed by The Nature Conservancy of Washington and the Washington Natural Heritage Program. These surveys have identified a total of 17 terrestrial, native plant community types (or elements) that occurred as 48 separate element occurrences on the Monument. These elements are unique in the state for their character and plant associations. Additionally, 112 populations/occurrences of 28 rare plant taxa were located across the Hanford Site.

Primary plant communities impacted by the fire included the following plant associations:

Antelope Bitterbrush/Wyoming Big Sagebrush/ Needle and Thread Grass: Big sagebrush is the dominant shrub, although bitterbrush (*Purshia tridentata*) commonly occurs at varying levels. Thickspike wheatgrass (*Agropyron dasystachum*) may occur in the understory. Cover of shrubs is generally relatively light, with a mosaic of openings in shrub canopy. In most sites, the highest cover of needle and thread grass, *S. comata*, occurs where the shrub cover has been eliminated or suppressed by fire, such as south of Highway 24 in the east portion of the site, and the north east portion of the McLane fire.

Antelope Bitterbrush/Sandberg's bluegrass/Cheatgrass: Wyoming big sagebrush (*Artemisia tridentata*) is frequently present and sometimes co-dominant. This cover type sometimes occurs in interdunes with sorted fine-textured substrate, often with significant cover from Gray and green rabbit brush (*Chrysothamnus nauseosus*, *C. viscidiflorus*) and snow buckwheat (*Eriogonum niveum*), and with some cover from Needle and thread grass and Indian Rice grass (*Stipa comata*, *Oryzopsis hymenoides*). Some areas with this cover type have a high cover of microbiotic crust, which is facilitated by north and neutral aspects, deposition of loess and slightly higher elevations. *Purshia tridentata* currently persists best in areas that don't burn regularly, probably due to low fuel loads or more protected positions in the landscape relative to ignition sources. Where *Eriogonum niveum* co-occurs, some open sand is indicated. (Easterly, R. and D. Salstrom. 2004.)

Big Sagebrush/Sandberg's bluegrass/Cheatgrass: This community is primarily composed of Big sagebrush with an understory dominated by Sandberg's bluegrass (*Poa secunda*) mixed with cheatgrass (*Bromus tectorum*). While they often commingle, *P. secunda* and *B. tectorum* are frequently ecologically separated on a fine scale (Easterly, R. and D. Salstrom. 2004.). With Sandberg's bluegrass dominant over cheat grass in the interdune areas, areas with specific microclimates with slightly higher moisture, for example, in specific micro-topographic areas, or in areas under shrubs.

Spiny Hopsage/ Wyoming Big Sagebrush/Sandberg's bluegrass: This community type is characterized by spiny hopsage (*Grayia spinosa*), Wyoming big sagebrush, Sandberg's bluegrass, and low forb diversity. The plant community type is generally confined to locations with soils that are finer-textured than is typical for needle-and-thread associations.

Riparian: Irrigation Run-off Created Wetlands: This riparian community type includes lakeshores, riparian areas, and wetlands on the North Slope that have been converted from shrub-steppe due to accumulated run-off from irrigated agriculture. The largest examples are just south and five miles south of Highway 24 on the eastern end of the Monument, including the WB (White Bluffs)-10 ponds. Communities in these wetlands are typically dominated by non-native species such as tamarisk and Russian olive, but also support native willows and cattails and black cottonwood. Although artificial, these areas can provide valuable wildlife habitat, especially for amphibians, birds and bats in an otherwise arid landscape.

Species diversity within each of the major community types has been altered in some areas due to the activities of neo-European people that entered the region beginning 200 years ago. In more recent history, alien plants were introduced and established a foot-hold in the shrub-steppe communities with the advent of livestock grazing in the mid-1800's and through agricultural cultivation and urbanization later in the century. More recently, this area has been extensively impacted by grazing activities administered by the Washington Department of Fish and Wildlife during the 1970's and 80's.

Vegetation within this area has also been altered through the establishment of cheatgrass within sage communities and the shortening of the natural fire return interval. Historically, fire return intervals were between 50-100 years in the shrub-steppe region. Fires burned in a mosaic fashion across the landscape leaving many healthy remnant stands of bunchgrass and sage. The mosaic fire patterns allowed for the survival of healthy sage communities and habitat for wildlife species.

Within the Big sagebrush community, cheatgrass provided ladder fuels for fire to quickly spread into and throughout these stands. In areas where native bunchgrass dominated the understory, fire impacts to some shrub stands were greatly reduced.

Riparian stands of vegetation experienced less severe fire impacts due to the high fuel moisture values

because of the immediate and constant availability of water to the plant species in these areas. Fire spread was also reduced because of areas of standing water in and around the ponds. Some of these areas had longer residence times, because of the large fuel structures, shrubs and trees. However, the fire behavior during these longer residence times was more of a smoldering burn characteristic of wet fuels rather than a hot or extreme fire behavior.

3. Rare Plants

Emergency consultation was held with the U.S. Fish and Wildlife Service (USFWS) on August 16, 2005 for threatened and endangered (T&E) species known to occur within the McLane Fire area in Franklin and Grant, Counties, Washington. A current USFWS species list for the county and GIS data layers for the Monument were consulted. Listed plant species that have occurrences within either Franklin or Grant County include;

Threatened:

Ute Ladies'-tresses (*Spiranthes diluvialis*)

Candidate:

White-bluffs bladderpod (*Lesquerella tuplashensis*)

Northern wormwood (*Artemisia campestris* ssp. *borealis* var. *wormskioldii*)

Species of Concern:

Gray Cryptantha (*Cryptantha leucophaea*)

Hoover's desert-parsley (*Lomatium tuberosum*)

Wanapum crazyweed (*Oxytropis campestris* var. *wanapum*)

The above listed species were identified as occurring, or having habitat within, Franklin or Grant County. However, through post fire reconnaissance and consultation with local experts, it was determined that these species were not affected by the fire because they have no habitat within or adjacent to the fire area, and/or inventories prior to the fire determined absence, or the fire is outside of the species range.

None of the above listed species have populations of/or individual plants that have been documented to occur within the fire area. Further the habitat requirements of Ute Ladies'-tresses and Northern wormwood are restricted to natural riparian areas along the Columbia River or within natural wetland springs, none of this habitat type occurs within the fire area. The White bluffs bladderpod is restricted to a specific association with caliche soils along the White bluffs a mile or more to the west of the fire location. Hoover's desert parsley occurs only on talus habitats, none of which exist in the fire area. Wanapum crazyweed is known only from one location in Washington well outside of the fire area.

The only listed plant with potential habitat within the fire area is Gray cryptantha. Gray cryptantha occurs on sandy substrate along the Columbia River within the Columbia Basin physiographic province. Associated species include pale evening-primrose (*Oenothera pallida*), needle-and-thread grass (*Stipa comata*), bitterbrush (*Purshia tridentata*), big sagebrush (*Artemisia tridentata*), Sandberg's bluegrass (*Poa secunda*), snow buckwheat (*Eriogonum niveum*), sulfur penstemon (*Penstemon attenuatus*), crouching milk-vetch (*Astragalus succumbens*), hoary chaenactis (*Chaenactis douglasii*), and cheat grass (*Bromus tectorum*). The taxon is basically restricted to sand dunes that have not been completely stabilized, i.e., areas where there is still some movement of sand. It would appear to be dependent on the strong winds of the region and the availability of open sand. Hanford specific inventories for rare plants from 1994 through 1999 conducted by the Nature Conservancy did not document any Gray cryptantha populations or individual plants within the fire area.

4. Vegetation/Structural Impacts

Vegetation resources were directly impacted by the McLane Fire and by suppression tactics utilized to control the fire. Documented impacts to vegetation resulted from:

- a) Construction of 13.5 (51 acres based on 16 foot width) miles of dozer line and discline on

previously undisturbed sites.

- b) Impacts to native microbiotic crust, shrub and grass species during line construction, suppression and mop-up activities
- c) Reduction of fuels and vegetation ahead of the fire-front (backfire operations).
- d) Vegetation losses due to fire intensity. Most sagebrush and grassland communities were completely consumed and/or scorched. Some additional loss is expected within remaining shrub communities. Loss of riparian structure and understory shrubs in and around wetland ponds.
- e) Loss of the organic litter layer on approximately 80% percent of the fire area.
- f) Damage to structural improvements, (e.g. boundary fence) by suppression actions. Fences were cut or damaged.

Generally speaking, most sagebrush and bunch grass communities experienced greater than 80-90% vegetation loss of above ground cover. On approximately 60 % of the fire area, complete consumption of vegetation resources was observed. Most shrub, grass and forb species and organic material on the soil surface was consumed indicating extreme fire intensity.

A mosaic burn pattern within the shrub-steppe vegetation was observed and mapped on approximately 20% of the fire area. However, in these areas some loss of shrubs is still predicted to occur due to mortality from heat produced by the fire and seasonally dry weather conditions.

The riparian areas experienced a complete mosaic type burn with varying intensities. Occasional flare ups were recorded into the tree canopy, but generally moderate intensity burning in the understory, and some smoldering and low intensity burning in areas with standing water. Some emergent vegetation was only partially burned, incompletely burned or merely scorched. The estimated vegetation mortality in riparian was 50-60% with the majority of this occurring in the understory, while the tree canopy remained relatively unburned.

Most of the forb species were consumed. Although the fire burned at varying intensities across the landscape, in most cases the residency time of the fire was short enough so as not to damage the soil, existing root systems, or reduce native seed banks in the known habitats of these plants. Burying of native seeds through wind deposition of soils now threatens the natural regeneration of native species in sandy soil types.

Negative impacts resulting from vegetation losses include a significant reduction in wildlife habitat, forage for wildlife species, visual quality degradation, increased non-native species invasion, bare soils, and reduced species diversity. The loss of wildlife habitat, and potential impacts to Threatened and Endangered Species are discussed further within the Wildlife Assessment.

Ground disturbing impacts to Monument property resulted from the creation of fire breaks using bull dozers and disks, and engines driving off road during suppression efforts. A complete inventory was conducted of disked lines and dozerlines on the fire area and emergency stabilization needs assessed (see Operations assessment).

Additional losses surveyed during field reviews were fire impacts on boundary fences. Boundary fence between the Monument and private lands were negatively impacted. Stretch posts and wire were damaged by the fire and will require repair. Boundary signs were also damaged due to fire. (See Operations Assessment).

B. Vegetation Recovery

Revegetation of the fire area through natural processes will take between 7-30 years to visually represent

pre-fire conditions. However, due to the presence of non-native plants and noxious weeds, the site is at risk of becoming dominated by non-native annuals, such as cheatgrass, and aggressive perennial species such as yellow starthistle, rush skeletonweed, perennial pepperweed, diffuse knapweed, puncture vine and salt cedar. Without active restoration it is unlikely that the site will recover to its pre-fire characteristics. Some impacted plant communities will take decades to re-establish back to pre-fire levels. Most research indicates that fire eliminates spiny hopsage altogether, and bitterbrush and sagebrush for at least several years. Because big sagebrush reproduces by seed and not by sprouting, recovery can be very prolonged on many sites. Concern has been expressed about the re-establishment of critical sagebrush communities for agency listed T&E wildlife habitat and the protection of the ecological integrity of the shrub-steppe community.

During the course of the fire, backfires were set (see Suppression Impact Map- Appendix V) to slow or stop the advancing fire front. In initiating this type of suppression action, native shrub-steppe habitat was lost thereby creating potential short and long-term impacts to T&E plant and wildlife species.

Other direct impacts to vegetation include the loss of shrub lands previously occupied by dense vegetation which are now open and traversable. The fire area is within an area open and accessible to the Public for recreation and this use could have negative impacts to wildlife, microbiotic crusts, government property, vegetation recovery, and cultural resources. Impacts to natural regeneration process and the protection of cultural resources will be jeopardized if general public use within the fire area is not carefully controlled and monitored for the remainder of this calendar year.

1. Noxious Weed Establishment

Invasive alien plant species pose one of the most serious threats to the native biodiversity, wildlife habitat, and scenic values which the Hanford Reach National Monument was declared to protect, and for which the entire Hanford Site is well known (Soll et al. 1999). At Hanford, and elsewhere in western North America, invasive and noxious alien plant species compete against and reduce habitat available for rare plant taxa and native plant species in general. Weeds alter ecosystem structure and function, disrupt food chains and other ecosystem characteristics vital to wildlife (including rare and endangered species), and can dramatically alter key ecosystem processes such as hydrology, productivity, nutrient cycling, and fire regime. Conditions created by wildfire favor the spread of many noxious weed species (Evans, J.R., J.J. Nugent, and J.K. Meisel, 2003).

The establishment of invasive species and noxious weeds which will compete with native vegetation recovery is likely. During field assessment inventories, the vegetation specialist recorded sightings of Russian (*Acroptilon repens*) and diffuse knapweed (*Centaurea diffusa*), perennial pepperweed (*Lepidium latifolium*), salt cedar (*Tamarix ramosissima*, *T. parviflora*), Phragmites (*Phragmites australis*), Russian Olive (*Eleagnus angustifolia*), swainsonpea (*Sphaerophysa salsula*), yellow starthistle (*Centaurea solstitialis*), rush skeletonweed (*Chondrilla juncea*), Canada thistle (*Cirsium arvense*), kochia (*Bassia scoparia*), puncturevine (*Tribulus terrestris*), and Russian thistle (*Salsola kali*) infestations. Several of these species are located within the fire area, and others are very near to the fire area (Appendix V-Maps). Further, puncturevine was located at the area that became the Incident Command Post (ICP). All vehicles that reported to the command post and proceeded into the fire area most likely spread puncturevine throughout the burned area.

All of the above non-native plants and noxious weeds spread vigorously, and are a threat to the burned area. Each of these species is currently located along existing road systems and/or in areas within or near the fire. It is imperative to treat known populations prior to seed-set in order to reduce the expansion potentials of these populations into the fire area. Immediate treatment of these populations is recommended.

The fire area presents a large-scale disturbance, and has created new open sites for weed invasion. Coupled with the added nutrients from the ash, a fertile bed for the rapid colonization and spread of non-native species has been created. Upon the discovery of new noxious weed populations, accurate population information should be collected through the use of Global Positioning Systems (GPS) to

determine infestation size, original source and potential control methods. Control efforts will be implemented in accordance with the Invasive species management plan guidelines and protocols.

The current Weed Inventory and Management Plan (2003) has prioritized the weed species that exist on the Monument based on the following criteria; their aggressiveness, level/size of infestation, degree of ecological threat or impact, value of habitat surrounding weed infestations, and effectiveness of available control technologies. Priority 1 species that pose the greatest threat and require immediate control that are within the fire area include; diffuse knapweed, yellow starthistle, rush skeletonweed, salt cedar, and puncturevine. Priority 2 species do not spread quite as rapidly as Priority 1 species, but are still of great concern. Priority 2 species in the fire area include; Russian knapweed, Canada thistle, and Russian Olive. Priority 3 species are all other invasive species that are perceived as slightly less likely to threaten Monument resources but are still of concern. Priority 3 species within or near the fire area include; perennial pepperweed, swainsonpea, Phragmites, and kochia.

Inventories throughout the Monument have only searched approximately 30,000 acres (>12000 ha) of the 195,000 acre Monument for targeted invasive plant species. Inventories have focused on areas where noxious weeds had been previously reported, on special habitats (e.g., natural springs) where certain target species are expected to occur, and in disturbed lands and corridors. Thus, not all of the Monument lands have been surveyed for noxious weeds. The inventory was conducted primarily on shrub-steppe uplands and around natural springs. Aquatic environments associated with irrigation wasteways and artificial impoundments on the North Slope have NOT been included in surveys to date. Riparian habitats surrounding these features were only partially surveyed, and invasive species associated with these habitats are undoubtedly substantially underreported in the current Monument database. The fire area may have further populations of noxious weeds that are currently undocumented. Immediate surveys of the area are important to document any previously unknown infestations.

The U.S. Fish and Wildlife Service uses an Integrated Pest Management (IPM) approach to treat targeted invasive plant species on the Hanford Reach National Monument. Manual, mechanical, biological, cultural (e.g., prescribed fire, competitive plantings), and chemical treatment methods will be used within the fire area to achieve prioritized weed control objectives. Invasive species managers will draw upon the full range of appropriate control technologies to develop integrated treatment plans for target species at selected priority sites. Treatment methodologies will be based upon the best information available from weed management literature and professional experience, tailored to the characteristics of the particular species and site.

2. Revegetation

Concern has been expressed over the loss of vegetation cover on the sandy soils of the McLane fire area. Wind blown sands may present a hazard to residents to the east of the burn, and drivers along county road Mt. Vista. Natural re-vegetation of the sand dunes will be slow and will take many years to stabilize these areas. Stabilization and re-vegetation of those areas as needed to ensure ecological function and protect public safety along the road way.

Revegetation in the area should be conducted in order to protect soils in the area, to reduce the change due to further erosion and degradation. Wind erosion is highly likely in this area. Additionally, because the site is at high risk from non-native species and noxious weeds, re-vegetation must be completed to protect the plant community and ecology of the site. As stated above, it is unlikely that the fire area will recover without some intervention and active restoration effort.

IV. RECOMMENDATIONS

A. Fire Suppression Rehabilitation:

Suppression account -Dozer/Disc line Rehabilitation- Reseed all disturbed areas resulting from suppression actions with native seed species to protect the ecological integrity of the area. Seeding will be postponed until fall of 2005 or until such time as adequate moisture provides a firm seedbed for

stabilization actions.

B. Emergency Stabilization : (specification related)

The following recommendations are offered to assist in the timely recovery of the McLane Fire:

-1 Non-Native Invasive Species Control- Integrated Pest Management- Identify and treat non-native invasive species within the McLane fire area, and control infestations in areas adjacent to the McLane Fire area utilizing integrated pest management techniques.

#-2 Ecological Stabilization- Native Grass Seeding- Apply native seed mix in burned area to stabilize ecological integrity of native shrub steppe community, prevent invasion by noxious weeds and non-native species, stabilize soils and reduce erosion that threatens public safety and site degradation.

-3 Ecological Stabilization - Native shrub planting - Collect native seed, grow out in nursery setting, and plant seedlings within the McLane fire area to re-establish shrub species component within fire area.

#- 6 Effectiveness Monitoring- Monitor non-native invasive species control treatments and seeding treatment in first year following native grass seed planting to determine success of revegetation efforts and to determine if additional treatments are required to protect and maintain ecological integrity of the site.

C. Rehabilitation (non-specification related treatments)

- Submit long-term rehabilitation plan as required to stabilize soils, control non-native invasive species and protect ecological integrity of the site.

D. Management Recommendations (non-specification related)

- Coordinate emergency stabilization needs with the Department of Energy to ensure public safety is protected along county roads and state Highway 24.
- Re-establish boundary fences and Refuge closure signs along irrigation rights-of-way to protect stabilization treatments and reduce trespass potentials.
- Increase law enforcement patrols through the fire area until vegetation is re-established

VI. References:

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BURNED AREA EMERGENCY STABILIZATION PLAN

McLane Fire

OPERATIONS ASSESSMENT

I. OBJECTIVES

- Identify, inventory, and map fire suppression impacts on jurisdictions affected by the fire.
- Specify rehabilitation measures to mitigate fire suppression impacts.
- Coordinate with local agencies so that specification recommendations are consistent with agency objectives.
- Protect natural and cultural resource values during rehabilitation efforts.

II. ISSUES

- Potential impacts to critical natural and cultural resources from suppression actions.
- Extensive soil disturbance on highly erodable soils from fire suppression activities.
- Damage to fences within fire perimeter associated with fire suppression actions.

III. OBSERVATIONS

A. Background

Please refer to fire history summary.

B. Reconnaissance Methodology and Results

On August 11, 2005 HRNM staff began evaluating resource impacts caused by the suppression effort on lands and physical improvements with the McLane fire area. Team members did reconnaissance from the ground and obtained information from suppression forces. Information was also gathered from interviews with Division Supervisors, and from engine crews assigned to the fire.

C. Findings

The McLane fire burned approximately 6068 acres on the Hanford Reach National Monument. Approximately 13.5 (51 acres based on 16 foot width) miles of dozer line and diskline was created to stop the fire. Approximately 8 miles of 4-strand barbed wire fence, signs and three gates were impacted by suppression crews and backfiring operations along the HRNM boundary to prevent fire spread onto adjacent private lands (see Photo documentation). These fences are critical to prevent livestock (cattle, horses, and sheep) from trespassing onto Monument lands. Further, public access points on this unit of the Monument were impacted by fire suppression including access roads, gates and parking areas.

Rehabilitation of suppression line is necessary to protect habitats from noxious weed infestation, ORV intrusion on the landscape, and to minimize fragmentation of ecological areas. Monitoring of suppression lines is necessary to determine the need for future noxious weed mitigation needs. Dozer lines and disklines within the burned area on lands managed by FWS will be treated according to methods described in the Hanford Site Biological Resource Management Plan (HSBRMP, 1996). A complete cultural resource assessment has been completed on all suppression lines within the fire (refer to Cultural Resources Assessment).

There are four types of suppression impacts to be considered:

- Dozer and diskline built on FWS which require restoration and revegetation. This will require adequate soil moisture to establish a firm seedbed prior to reseeding actions.
- Repair of the boundary fence, interior fence, and public access points on the HRNM.
- Access roads to the fire area that were used for suppression actions are now impassible due to the amount of loose powdery soils resulting from the destruction of soil structure in the upper horizons. These roads will be rehabilitated as weather permits (accumulation of adequate moisture).

IV. RECOMMENDATIONS

A. Fire Suppression- (non-specification related-charged to suppression account)

- **Dozer, diskline and Road Rehabilitation.** Rehabilitate dozerlines, disklines and other sites directly or indirectly impacted by fire suppression activities. Dozerline and diskline rehab should be done at a later date due to the degraded soil conditions at this time. This activity should take place in the late fall or early winter when soil moisture content is higher.
- **Fence Repair-** Repair suppression damaged fence and signs around perimeter of the fire between HRNM boundary and other private lands. These fences were 4-strand barbed wire and will need to be replaced with new, similar materials.

B. Management (non-specification related)

- Continue to review rehabilitation specifications with operators and other personnel associated with implementation of the BAER Plan to insure suppression rehabilitation specifications are clearly understood for protection of sensitive resources and land productivity. Ensure proper accounting procedures are followed in the repair of suppression related impacts through suppression accounts.
- Guarantee safety of personnel assigned to rehab operational assignments in the fire area.
- Monitor suppression related damage on dirt roads following fall and winter moisture events to see if additional rehab measures are necessary.

V. CONSULTATIONS

Greg Hughes, Project Leader FWS
 Dan Mulligan, Archaeologist, FWS
 Heidi Newsome, Wildlife Biologist, FWS
 Eric Hagen, Fire Management Officer, FWS
 Mike Ritter, Deputy Project Leader, FWS
 David N. Smith, Natural Resource Specialist, FWS

VI. REFERENCES

USDI, 1995. BAER Field Team Leader Reference Book
 DOE, 1996. Hanford Site Biological Resource Management Plan

BURNED AREA EMERGENCY STABILIZATION PLAN
MCLANE FIRE-HANFORD REACH NATIONAL MONUMENT

APPENDIX II ENVIRONMENTAL COMPLIANCE

- **Environmental Compliance Considerations and Documentation**
- **NEPA Environmental Screening Checklist and Categorical Exclusion**



APPENDIX II - ENVIRONMENTAL COMPLIANCE

ENVIRONMENTAL COMPLIANCE CONSIDERATIONS, DOCUMENTATION, AND CONSULTATIONS

McLane Fire Burned Area Emergency Stabilization Plan

FEDERAL, STATE, AND PRIVATE LANDS ENVIRONMENTAL COMPLIANCE RESPONSIBILITIES

All projects proposed in the McLane Fire Burned Area Emergency Stabilization (ES) Plan that are prescribed, funded, or implemented by Federal agencies on Federal, State, or private lands are subject to compliance with the National Environmental Policy Act (NEPA) in accordance with the guidelines provided by the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); Department of the Interior Manual, Part 516, U.S. Fish and Wildlife Service, NEPA Guidelines, Part 516 DM 6, Appendix 1; and DOE, NEPA Regulations (10 CFR Part 1021). This Appendix documents the BAER Team considerations of NEPA compliance requirements for prescribed rehabilitation and monitoring actions described in this plan for all jurisdictions affected by the McLane Fire burned area emergency stabilization.

B. RELATED PLANS AND CUMULATIVE IMPACTS ANALYSIS

Draft Hanford Biological Resources Management Plan and Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement: The BAER Team Environmental Protection Specialist reviewed the Draft Hanford Biological Resources Management Plan (1996) and Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (September 1999) and determined that actions proposed in the McLane Fire BAER Plan within the boundary of the Hanford Reach National Monument are consistent with the management objectives established in the Land-Use Plan. The EIS incorporates the management plan by reference. The EIS/management plan specifically addresses bulldozer lines and provides NEPA compliance for bulldozer line rehabilitation under NEPA.

Cumulative Impact Analysis: Cumulative effects are the environmental impacts resulting from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, both Federal and non-Federal. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The emergency protection and stabilization treatments for areas affected by the McLane Fire, as proposed in the McLane Fire ES Plan, do not result in an intensity of impact (i.e. major ground disturbance, etc.) that would cumulatively constitute a significant impact on the quality of the environment. The treatments are consistent with the above jurisdictional management plans and associated environmental compliance documents and categorical exclusions listed below.

C. APPLICABLE AND RELEVANT CATEGORICAL EXCLUSIONS

U.S. Fish and Wildlife Service: The individual actions proposed in this plan for Hanford Reach National Monument are Categorically Excluded from further environmental analysis as provided for in the Department of the Interior Manual Part 516 and U.S. Fish and Wildlife Service, NEPA Guidelines, Part 516 DM 6, Appendix 1. All applicable and relevant Department and Agency Categorical Exclusions are listed below. Department exceptions (516) DM 2.3 do not apply to any of the individual actions proposed. Categorical Exclusion decisions were made with consideration given to the results of required emergency consultations completed by the BAER Team and documented in Section E below.

Applicable Departmental Categorical Exclusions

516 DM2 App. 2, 1.6	Non-destructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research and monitoring activities.
516 DM 6 App. 4.4 A	Operations, maintenance, and replacement of existing facilities (includes road maintenance).
516 DM 6 App. 4.4 L(5)	Emergency road repairs under 23 U.S.C. 125.
516 DM 6 App. 7.4 C(3)	Routine maintenance and repairs to non-historic structures, facilities, utilities, grounds and trails.
516 DM 6 App. 7.4 C(19)	Landscaping and landscape maintenance in previously disturbed or developed areas.

Applicable U.S. Fish and Wildlife Service Categorical Exclusions

516 DM 6 App. 1.4B (1)	Research, inventory, and information collection activities directly related to the conservation of fish and wildlife resources which involve negligible animal mortality of habitat destruction, no introduction of contaminants, or no introduction of organisms not indigenous to the affected ecosystem.
516 DM 6 App. 1.4B (3) i	The installation of fences.
516 DM 6 App. 1.4B (3)iii	The planting of seeds or seedlings and other minor revegetation actions.
516 DM 6 App. 1.4B (3)v	The development of limited access for routine maintenance and management purposes.
516 DM 6 App. 1.4B (5)	Fire management activities, including prevention and restoration measures, when conducted in accordance with Departmental and Service procedures.
516 DM 6 App. 1.4B (6).	The reintroduction or supplementation (e.g. stocking) of native, formerly native, or established species into suitable habitat within their historic or established range, where no or negligible environmental disturbances are anticipated.

D. STATEMENT OF COMPLIANCE FOR THE MCLANE FIRE BURNED AREA EMERGENCY STABILIZATION PLAN

This section documents consideration given to the requirements of specific environmental laws in the development of the McLane Fire BAER Plan. Specific consultations initiated or completed during development and implementation of this plan are also documented. The following executive orders and legislative acts have been reviewed as they apply to the McLane Fire BAER Plan:

1. National Historic Preservation Act (NHPA). The BAER Team archeologists have initiated necessary consultation with the Washington State Historic Preservation Office (SHPO) and the Yakama, Umatilla, Nez Perce, and Wanapum Tribes regarding treatments proposed in the McLane Fire BAER Plan.
2. Executive Order 11988. Floodplain Management. No treatments are proposed within the 100-year floodplain.
3. Executive Order 11990. Protection of Wetlands. Treatments and actions proposed within wetland areas will "minimize the destruction, loss or degradation of wetlands, and preserve and enhance the natural and beneficial values of wetlands".

4. Executive Order 12372. Intergovernmental Review. Coordination and consultation is ongoing with affected Tribes, Federal, State, and local agencies. A copy of the BAER Plan will be disseminated to all affected agencies.
5. Executive Order 12892. Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. All Federal actions must address and identify, as appropriate, disproportionately high and adverse human health or low-income populations, and Indian Tribes in the United States. The BAER Team Environmental Protection Specialist has determined that the actions proposed in this plan will result in no adverse human health or environmental effects for minority or low-income populations and Indian Tribes.
6. Endangered Species Act. The BAER Team wildlife biologist and vegetation specialists have consulted with the Service and Washington Department of Fish and Wildlife regarding actions proposed in this plan and potential affects on Federally and State listed species. Individual agencies are responsible for continued consultations during plan implementation.
7. Secretarial Order 3127. Although contaminated sites are known to occur on properties owned by the Department of Energy at the Hanford Site, no treatments are proposed that would affect contaminated sites. There are no known contaminated sites on other jurisdictions affected by the McLane Fire.
8. Clean Water Act. The BAER Team Environmental Protection Specialist has determined that treatments prescribed in the McLane burned area will have no impacts to water quality within wetland areas. The wetland area within the fire perimeter is a irrigation return wasteway, therefore the wetland is artificial in nature. The water flowing through the wetland does eventually return to the Columbia River, however, treatments proposed within the wetlands would have no impact to water returning to the river. Impacts would not differ significantly from routine water use practices for the area. Long-term, treatments proposed in this plan would be expected to have a beneficial impact to water quality through stabilization of ash and soils, and treatment of invasive species within the McLane Fire burned area.
9. Clean Air Act. Federal Ambient Air Quality Primary and Secondary Standards are provided by the National Ambient Air Quality Standards, as established by the U.S. Environmental Protection Agency (EPA) (Clean Air Act, 42 U.S.C. 7470, et seq., as amended). The BAER Team Environmental Protection Specialist has determined that treatments prescribed in the McLane burned area will have short-term minor impacts to air quality that would not differ significantly from routine land use practices for the area. Long-term, treatments proposed in this plan would be expected to have a beneficial impact to air quality through stabilization of ash and soils within the McLane Fire burned area.

E. CONSULTATIONS

Department of Energy, Hanford National Laboratory

Tom Ferns, Program Manager, Richland Operations Office

NEPA Checklist: If any of the following exception applies, the ESR Plan cannot be Categorically Excluded and an Environmental Assessment (EA) is required.

(Yes) (No)

- ☐ ☒ Adversely affect Public Health and Safety
- ☐ ☒ Adversely affect historic or cultural resources, wilderness, wild and scenic rivers aquifers, prime farmlands, wetlands, floodplains, ecologically critical areas, or Natural Landmarks.
- ☐ ☒ Have highly controversial environmental effects.
- ☐ ☒ Have highly uncertain environmental effects or involve unique or unknown environmental risks.
- ☐ ☒ Establish a precedent resulting in significant environmental effects.
- ☐ ☒ Relates to other actions with individually insignificant but cumulatively significant environmental effects.
- ☐ ☒ Adversely effects properties listed or eligible for listing in the National Register of Historic Places
- ☐ ☒ Adversely affect a species listed or proposed to be listed as Threatened or Endangered.
- ☐ ☒ Threaten to violate any laws or requirements imposed for the "protection of the environment" such as Executive Order 11988 (Floodplain Management) or Executive Order 11990 (Protection of Wetlands).

National Historic Preservation Act

Ground Disturbance:

- ☐ None
- ☒ Ground disturbance did occur and an archeologist survey, required under section 110 of the NHPA has been prepared. Findings have been documented in Appendix I- Cultural Resources Assessment.

A NHPA Clearance Form:

- ☐ Is required because the project may have affected a site that is eligible or on the national register. The clearance form is attached. SHPO has been consulted under Section 106 (see Cultural Resource Assessment, Appendix I).
- ☒ Is not required because the ESR Plan has no potential to affect cultural resources (initial of cultural resource specialist).

Other Requirements

(Yes) (No)

- ☒ ☐ Does the ESR Plan have potential to affect any Native American uses? If so, consultation with affiliated tribes is needed.
- ☒ ☐ Are any toxic chemicals, including pesticides or treated wood, proposed for use? If so, local agency integrated pest management specialists must be consulted.

I have reviewed the proposals in the McLane Fire Burned Area Emergency Stabilization Plan in accordance with the criteria above and have determined that the proposed actions would not involve any significant environmental effect. Therefore it is categorically excluded from further environmental (NEPA) review and documentation. ESR Team technical specialists have completed necessary coordination and consultation to insure compliance with the National Historic Preservation Act, Endangered Species Act, Clean Water Act and other Federal, State and local environment review requirements.

ES Team Environmental Protection Specialist

Date

Project Leader, Hanford Reach National Monument

Date

**BURNED AREA EMERGENCY STABILIZATION PLAN
MCLANE FIRE- HANFORD REACH NATIONAL MONUMENT**

Appendix IV Supporting Documentation

- **Section 7 Consultation Letter**
- **Cost/Risk Analysis**





United States Department of the Interior

FISH AND WILDLIFE SERVICE

Central Washington Field Office
215 Melody Lane, Suite 119
Wenatchee, Washington 98801



August 16, 2005

MEMORANDUM

To: Heidi Newsome, Hanford Reach National Monument/Saddle Mountain NWR

From: Mark G. Miller, Project Leader, Central Washington Field Office

Subject: Species List for Wildland Fire Rehabilitation Planning and BAER (USFWS reference 1-09-2005-SP-W0345; HUC 17-02-00-16-04)

Attached is the species list you requested on August 15, 2005, in your e-mail to my staff. Below are our general recommendations regarding the assessment of the proposed action to listed, proposed, and candidate species, as well as species of concern.

Comments

Major concerns that should be addressed in your biological assessment of project impacts to listed or proposed animal species are:

1. Level and type of use of the project area by listed species, with particular attention on the potential for reproductive behaviors.
2. Effect of the project on listed species' primary food stocks and foraging areas in all areas influenced by the project.
3. Impacts from project construction and implementation (e.g. increased noise levels, increased human activity and/or access, loss or degradation of habitat) which may result in disturbance to listed species and/or their avoidance of the project area.

Major concerns that should be addressed for listed or proposed plant species are:

1. Distribution of taxon in project vicinity.

2. Disturbance (trampling, uprooting, collecting, etc.) of individual plants and loss of habitat.
3. Changes in hydrology where taxon is found.

Candidate species are those species for which the U.S. Fish and Wildlife Service has sufficient information to propose for listing as threatened or endangered under the Act. Species of concern (some of which are former Category 1 and Category 2 candidates) are those species whose conservation standing is of concern to the Service, but for which status information is still needed. Conservation measures for species of concern and candidate species are voluntary but recommended. Protection provided to these species now may preclude possible listing in the future.

For information regarding species listed by NOAA Fisheries, please visit the following website <http://www.nwr.noaa.gov/1salmon/salmesa/index.htm> or call (509) 962-8911 in Ellensburg, Washington.

If you have any questions regarding this letter or your responsibilities under the Act, please contact Jeff Krupka at the Central Washington Field Office in Wenatchee at (509) 665-3508, extension 18, or via e-mail at jeff_krupka@fws.gov.

Attachment

Attachment

FRANKLIN COUNTY

LISTED

Threatened

Bald eagle (*Haliaeetus leucocephalus*)

Bull trout (*Salvelinus confluentus*) – Columbia River distinct population segment

Spiranthes diluvialis (Ute ladies'-tresses), plant

CANDIDATE

Washington ground squirrel (*Spermophilus washingtoni*)

Lesquerella tuplashensis (White Bluffs bladderpod), plant

SPECIES OF CONCERN

Animals

Burrowing owl (*Athene cunicularia*)

California floater (*Anodonta californiensis*), mussel

Columbia clubtail (*Gomphus lynnae*), dragonfly

Ferruginous hawk (*Buteo regalis*)

Giant Columbia spire snail (*Fluminicola columbiana*)

Loggerhead shrike (*Lanius ludovicianus*)

Long-eared myotis (*Myotis evotis*)

Pacific lamprey (*Lampetra tridentata*)

Pallid Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)

Redband trout (*Oncorhynchus mykiss*)

River lamprey (*Lampetra ayresi*)

Sagebrush lizard (*Sceloporus graciosus*)

Western brook lamprey (*Lampetra richardsoni*)

Vascular Plants

Cryptantha leucophaea (Gray cryptantha)

GRANT COUNTY

LISTED

Endangered

Pygmy rabbit (*Brachylagus idahoensis*) – Columbia Basin distinct population segment

Threatened

Bald eagle (*Haliaeetus leucocephalus*)

Bull trout (*Salvelinus confluentus*) – Columbia River distinct population segment

Spiranthes diluvialis (Ute ladies'-tresses), plant

CANDIDATE

Washington ground squirrel (*Spermophilus washingtoni*)

Artemisia campestris ssp. *borealis* var. *wormskioldii* (Northern wormwood), plant

SPECIES OF CONCERN

Animals

Burrowing owl (*Athene cunicularia*)

California floater (*Anodonta californiensis*), mussel

Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*)

Ferruginous hawk (*Buteo regalis*)

Giant Columbia spire snail (*Fluminicola columbiana*)

Greater sage grouse (*Centrocercus urophasianus*) – Columbia Basin distinct population segment
Kincaid meadow vole (*Microtus pennsylvanicus kincaidi*)

Loggerhead shrike (*Lanius ludovicianus*)

Long-eared myotis (*Myotis evotis*)

Northern goshawk (*Accipiter gentilis*)

Northern leopard frog (*Rana pipiens*)

Pacific lamprey (*Lampetra tridentata*)

Pallid Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)

Redband trout (*Oncorhynchus mykiss*)

River lamprey (*Lampetra ayresi*)

Sagebrush lizard (*Sceloporus graciosus*)

Western brook lamprey (*Lampetra richardsoni*)

Vascular Plants

Cryptantha leucophaea (Gray cryptantha)

Lomatium tuberosum (Hoover's desert-parsley)

Oxytropis campestris var. *wanapum* (Wanapum crazyweed)

McLANE FIRE
Cost/Risk Analysis – Vegetation

PART 1. TREATMENT COST

Treatments	Cost
Non-native Invasive Species Control- Integrated Pest Management	\$345,166
Ecological Stabilization- Native Seeding	\$1,333,868
Ecological Stabilization- Native Plantings	\$60,220
Protective Fencing	\$179,677
Public Safety, Hazard Warning Signs	\$2,520
Effectiveness Monitoring	\$49,003
Total	\$1,970,454

PART 2. PROBABILITY OF STABILIZATION TREATMENTS SUCCESSFULLY MEETING ES OBJECTIVES

Treatments	Units	%
Non-native Invasive Species Control- Integrated Pest Management		80
Ecological Stabilization- Native Seeding		75
Ecological Stabilization- Native Plantings		75
Protective Fencing	8.5	95
Public Safety Warning Signs		100
Effectiveness Monitoring		90

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Medium	High
Lives		X		
Residential & Commercial Property		X		
Wildlife				X
Cultural Resources			X	

Proposed Action – Treatments Successfully Implemented (check one)

Resource Value	None	Low	Medium	High
Lives	X			
Residential & Commercial Property		X		
Wildlife			X	
Cultural Resources			X	

PART 3. SUMMARY

- Are the risks to cultural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [x] No [] Rational for answer:

Non-Native Invasive Species Control. The detection, control and monitoring of non-native invasive species in burned areas and the prevention of the expansion of known populations into

newly disturbed areas will present no risk to cultural resources and will prevent the spread of non-native invasive species to private property.

Exclusion Fences. The repair of existing fence to exclude livestock from burned area is necessary until native vegetation can be reestablished, and for protection of Monument resources. Grazing was prohibited on the Monument through Presidential proclamation. This will benefit cultural resources as livestock can cause considerable damage to cultural resources.

No Action Yes [☐] No [☒] Rational for answer:

No the risks to cultural resources and private property are not acceptable. Non-native invasive plants and unacceptable soil erosion could significantly impact the Monument's resources and will likely affect private property. Cultural resources will incur additional damage if exclusion fences are not constructed.

Alternative(s) Yes [☐] No [☐] Rationale for answer: **None**

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their cost?

Proposed Action Yes [☒] No [☐] Rational for answer:

Protection of sensitive shrub-steppe habitat and obligate wildlife species will not only benefit these resources but will improve their condition as regrowth occurs.

No Action Yes [☐] No [☒] Rational for answer:

Failure to protect and stabilize this area would impact nationally significant resources. Failure to prevent the spread of non-native plants will increase the long term costs of managing these lands, increase fire risks, reduce critical habitat for many wildlife species, and reduce potential reintroduction sites for listed species.

Alternative(s): Yes [☐] No [☐] Rationale for answer: **None**

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [☒] No [☐] Rationale for answer:

It is highly likely that the no action alternative would result in substantial damage to nationally significant cultural and biological resources of The Hanford Reach National Monument. The proposed actions have a high probability of protecting soil, vegetation, and wildlife resources currently at risk of degradation. The proposed action would achieve the emergency stabilization objectives established in DOI policy and therefore are recommended for implementation.